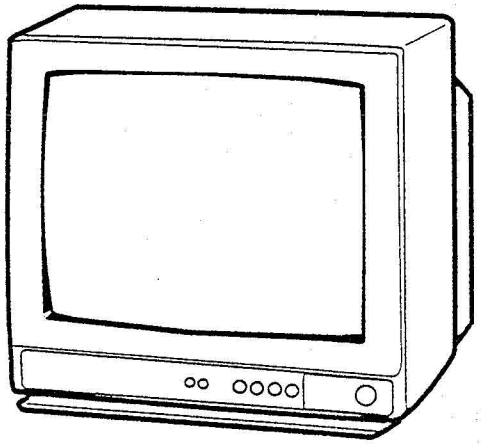
SANYO

Service Manual Colour Television

Model No. C14EA80D
(GERMANY,ITALY)

Service Ref. No. C14EA80D-00
C14EA80D-01



Specification

Power source	AC 220~240V 50Hz
Television system	System B/G
Colour system	PAL
Receiving channel	VHF E2~E12, A-H, H1, H2, UHF 21~69 CATV S1~S20, X, Y, Z
Aerial input impedance	75ohm
AV terminal	
21 Pin socket	CENELEC standard
Sound output	2 watts
Picture tube	37cm diagonal, 90 degree
(Visible picture diagonal)	34cm
Dimensions	370(W) X 331(H) X 381.5(D)mm
Weight	9.0 Kg

PRODUCT CODE
1113 183 03(C14EA80D)

ORIGINAL VERSION
Chassis No. EC2-A 14

Give complete "SERVICE REF. NO." for parts order or servicing , it is shown on the rating sheet on the cabinet back of the TV set.

Note:
This TV receiver will not work properly in foreign countries where the television transmission system and power source differ from the design specifications.
Refer to the specifications for the design specifications.

SAFETY PRECAUTION

1: An isolation transformer should be connected in the power line between the receiver and the AC line when a service is performed on the primary of the converter transformer of the set.
2: Comply with all caution and safety-related notes provided on the cabinet back, inside the cabinet, on the chassis or the picture tube.
3: When replacing a chassis in the cabinet, always be certain that all the protective devices are installed properly, such as, control knobs, adjustment covers or shields, barriers, isolation resistor-capacitor networks etc.

Before returning any television to the customer, the service technician must be sure that it is completely safe to operate without danger of electrical shock.

X-RADIATION PRECAUTION

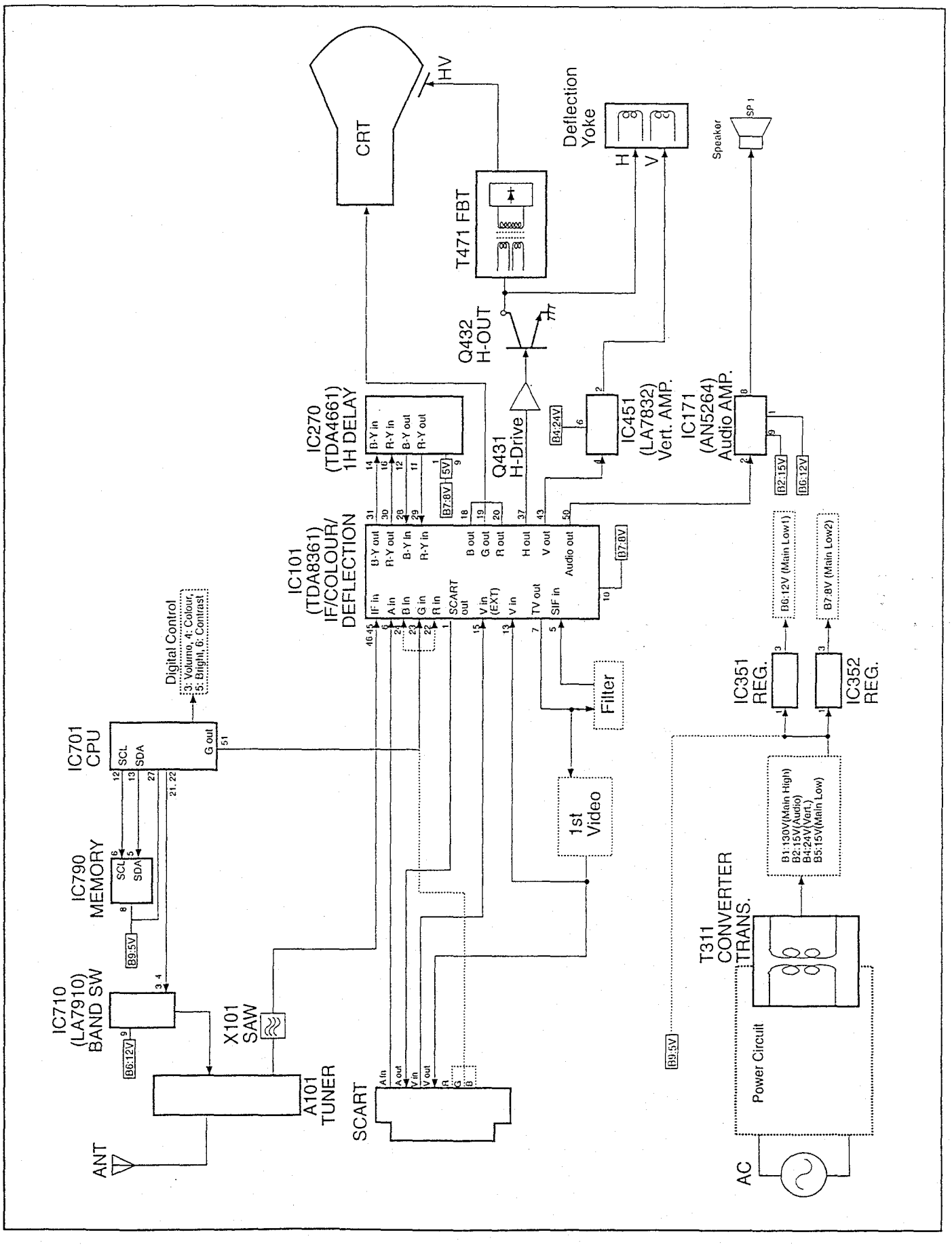
The primary source of X-RADIATION in the television receiver is the picture tube. The picture tube is specially constructed to limit X-RADIATION emissions. For continued X-RADIATION protection, the replacement tube must be the same type as the original including suffix letter. Excessive high voltage may produce potentially hazardous X-RADIATION. To avoid such hazards, the high voltage must be maintained within specified limit. Refer to this service manual, high voltage adjustment for specific high voltage limit. If high voltage exceeds specified limits, take necessary corrective action. Carefully follow the instructions for +B1 volt power supply adjustment, and high voltag adjustment to maintain the high voltage within the specified limits.

PRODUCT SAFETY NOTICE

Product safety should be considered when a component replacement is made in any area of a receiver. Components indicated by mark ⚠ in the parts list and the schematic diagram designate components in which safety can be of special significance. It is particularly recommended that only parts designated on the parts list in this manual be used for component replacement designated by mark ⚠. No deviations from resistance wattage or voltage ratings may be made for replacement items designated by mark ⚠.

BLOCK DIAGRAM

Note: This is a general diagram for all models and therefore differs slightly from the actual block diagram.



CIRCUIT DESCRIPTION

1.POWER SUPPLY

The power supply circuit of the EC2-A chassis is composed of a rectifier smoothing circuit, an oscillation circuit, a control circuit and an output rectifier circuit. The AC input voltage is full-wave rectified by the rectifier smoothing circuit, and an unstable DC voltage is generated at both terminals of the smoothing capacitor C307. This voltage is input to the oscillation circuit. The oscillation circuit is provided with a blocking oscillator circuit that switches the switching transistor Q313 ON and OFF, and an oscillation frequency and a duty square wave pulse are generated in the input windings according to operation of the control circuit. A square-wave pulse whose size is dependent on the turn ratio of the input and output windings is obtained in the output winding. This is rectified in the output rectifier circuit, and the desired DC voltage is obtained.

2.IF & DEFLECTION (TDA8361)

The IF output signal from the tuner passes through the SAW filter, and it is input to pin45 and pin46 of IC101. The signal input to the IC passes through the IF amplifier, video detection and video amplifier circuits and is output from pin7 as a composite video signal. And after this signal is converted to impedance at Q122, supplies to the video and chroma amplifier stages. The output signal from pin7 passes through the 6.0MHz(I)/5.5MHz(B/G) trap circuit of X151, and it is input to pin5 of IC101. The signal input to the IC passes through the SIF amplifier, FM detector, external audio switch and audio output circuit, and it is then output from pin50 as audio drive signal. The sync.-separation circuit separates the video signals applied to pin13 or pin15 to vertical- and horizontal-sync. signals respectively. The horizontal oscillator requires no external components and is fully integrated. The oscillator is always running when the start-pin36 is supplied with 8V. Horizontal drive signal is output from pin37. VR401 is for adjustment of the horizontal centering. The separated vertical-sync. signal from sync. separation circuit passes through the vertical-separation circuit, and applied to trigger divider circuit. The horizontal oscillation pulse and input vertical sync. pulse are monitored by the trigger divider circuit, and switching 50Hz and 60Hz system, the vertical amplitude automatically adjusted for 50Hz and 60Hz. The output signal from the trigger divider is triggered vertical oscillation circuit consisting of C401, R402 and pin42, and vertical drive pulse is output from pin43. VR431 is for changing the amount of AC feedback applied to pin41 and for adjustment of the vertical amplitude.

3.VIDEO CHROMA & R.G.B. (TDA8361)

The composite video signal output from the pin7 of IC101 passes through Q122/Q124, and it is supplied to pin13. The external video signal output from SCART is supplied to pin15. The video signal input to pin13 or pin15 is separated to luminance (Y) signal and chroma signal in IC101. These pins are used in common with H/V-sync. separation input. The peaking of Y signal is adjusted by DC voltage of pin14. ("SHARPNESS" control) The chroma signal is divided into R-Y and B-Y chroma signals, demodulated in IC101, and output from pin30 (R-Y) and pin31 (B-Y). These chroma signals pass through the 1H delay line circuit (IC270), and they are input to pin29 (R-Y) and pin28 (B-Y). These R-Y/B-Y signals pass through RGB matrix circuit and RGB selector circuit of IC101. The internal RGB signals are generated in RGB matrix circuit and the RGB selector, consisting linear amplifiers, clamps and selects either the internal RGB signals or the external OSD signal from pin23(G). In this stage, the OSD signal which is switched by blanking signal from pin21 is superimposed into internal RGB signals.The colour gain is controlled by DC voltage of pin26. ("COLOUR" control) The contrast control voltage present at pin25, and the brightness control voltage present at pin17 controls DC level of RGB signals. The RGB signals are finally buffered before being available at the RGB output pins [pin20 (R), pin19 (G), pin18 (R)].

4.AUDIO OUTPUT(AN5265)

The audio signal output from pin50 of IC101 is input to pin2 of IC171 and passes through the pre-amplifier circuit and drive circuit, after which it is input to the audio amplifier. The audio amplifier is an SEPP (single-ended, push-pull) OTL type and output to pin8 to directly drive the speaker.

5.VERTICAL OUTPUT (LA7832)

An IC (LA7832) is used for the vertical output circuit in this chassis. The vertical drive pulse from pin43 of IC101 is input to pin4 of IC451. This pulse drives IC451, and vertical scanning is performed. In the first half of scanning a deflecting current is output from pin2 and passes through the following path:
Vcc(B4) → D451 → pin3 → pin2 → DY → C461 → VR431/R459. An electric charge is then stored in C461. In the last half of scanning the current path is C461 → DY → pin2 → pin1 → VR431/R459 → C461. In this way, an amplifying sawtooth waveform current flows directly to DY to perform electron beam defection. Next, in the first half of the banking period the vertical drive pulse suddenly becomes OFF, and in order to reduce the current flowing to DY, the current path becomes as follows by the inductance of DY:
DY → pin2 → pin1 → VR431/R459 → C461 → DY. Also, when the charge of DY has dissipated, the current path becomes Vcc24V → pin6 → pin7 → C452 → pin3 → pin2→ DY → C461 → VR431/R459, and when the prescribed current value is reached, the vertical drive pulse becomes ON. This completes one cycle.

6.HORIZONTAL OUTPUT

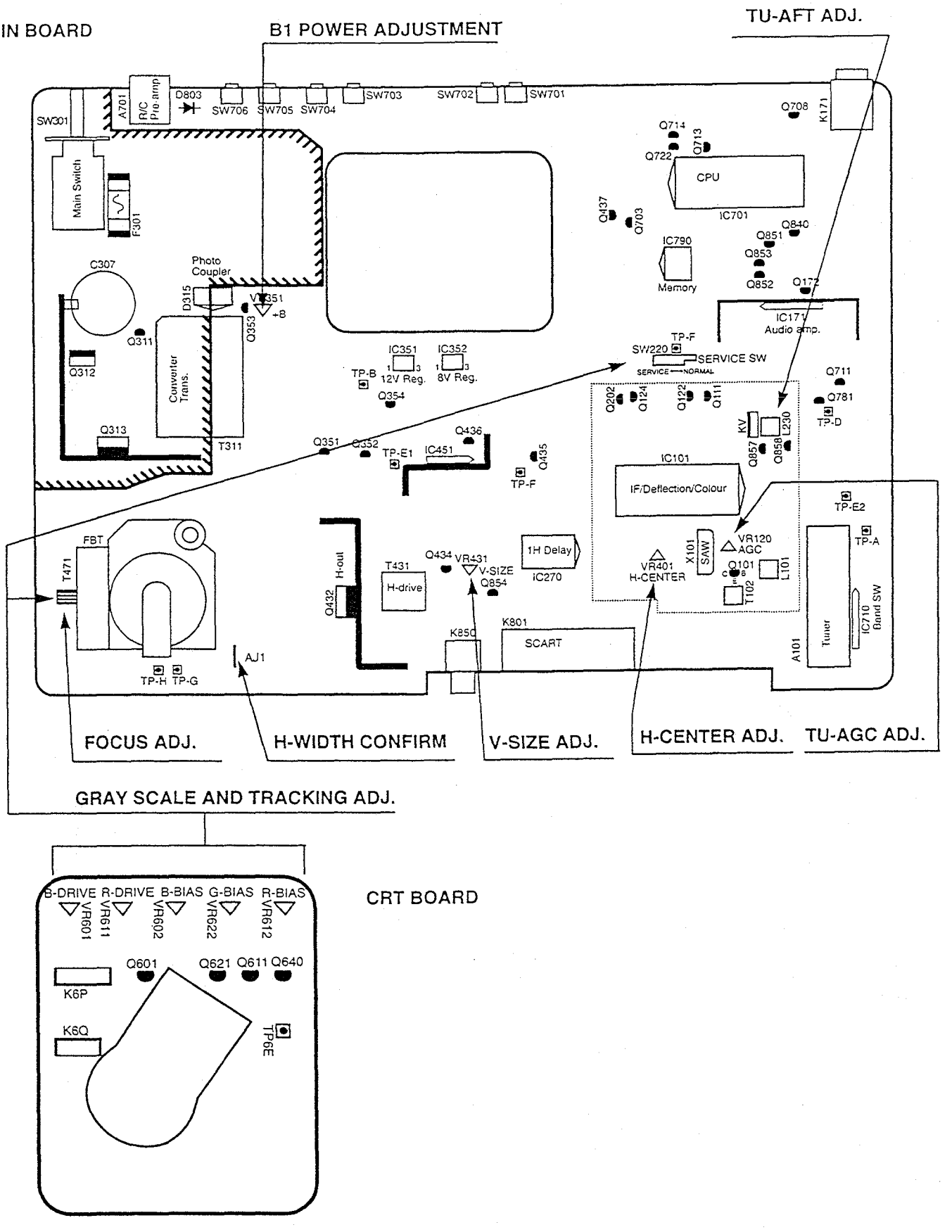
A horizontal oscillation signal is output from pin37 of IC101 and switches the drive transistor Q431. This switching signal is current amplified by the drive transformer T431 and drives the output transistor Q432. When Q432 becomes ON, an amplifying current flows directly to DY through C441/442 → DY → 0432 → GND,

and defection is performed in the last half of the scanning period. Next, when Q432 becomes OFF, the charge that had been stored in DY up to that point releases a resonance current to the resonant capacitors C435, C444 and C445 and charges them.The current stored in C435, C444 and C445 is then flowed back to DY, and an opposite charge is then stored in DY. This opposite charge then switches the dumper diode in Q432 ON, the resonance state is completed, and an amplifying current is then flowed again directly to DY through the dumper diode. By this means, deflection in the first half of the scanning period is performed, and when Q432 becomes ON at the end of the first half of the scanning period, deflection during the last half is begun, thus completing one cycle.

7.CPU

Pin description

Pin1: H-sync. input (Horizontal pulse for OSD)
Pin2: V-sync. input (Vertical pulse for OSD)
Pin3: Volume control output (6-bit DAC)
Pin4: Colour control output (6-bit DAC)
Pin5: Brightness control output (6-bit DAC)
Pin6: Contrast control output (6-bit DAC)
Pin7/8: Not used (GND)
Pin9: TV/AV output (L:AV mode)
Pin10: AFT ON/OFF output (L:AFT ON)
Pin11: Not used (GND)
Pin12: I²C bus SCL (Serial clock for memory)
Pin13: I²C bus SDA (Serial date for memory)
Pin14: Tuning voltage output
Pin15: Ident signal input (L:No signal)
Pin16: R/C signal input
Pin17/18: Band select option input
Pin19: Not used (Open)
Pin20: SCART auto switch input (L:VCR Play)
Pin21/22: Band selector output
Pin23: Supply Ground
Pin24: Oscillator input for CPU
Pin25: Oscillator output for CPU
Pin26: Supply Ground
Pin27: Power supply(+5V)
Pin28: Oscillator output for OSD
Pin29: Oscillator input for OSD
Pin30: Reset input
Pin31: Protect signal input (L:Power circuit defects)
Pin32: Sync. ID signal input
Pin33: AFT signal input
Pin34: Keyboard scan 2
Pin35: Keyboard scan 1
Pin36~45: Not used (GND)
Pin46: Not used
Pin47: Mute output in no picture(FTZ mute)
Pin48: Power ON/OFF output (H:ON)
Pin49: Blanking output for OSD
Pin50: Not used (Open)
Pin51: Green output for OSD
Pin52: Not used (Open)


MAIN BOARD
B1 POWER ADJUSTMENT
TU-AFT ADJ.
SW301
A701
R/C Pro.amp
D803
SW706
SW705
SW704
SW703
SW702
SW701
Q708
K171
Q714
Q713
Q722
CPU
IC701
Q437
Q703
IC790
Memory
Q840
Q851
Q853
Q852
Q172
IC171
Audio amp.
Main Switch
F301
C307
Photo Coupler
D315
VR351
+B
Q353
Q311
Q312
Converter Trans.
T311
Q313
IC351
IC352
TP-B
12V Reg.
8V Reg.
Q354
TP-F
SW220
SERVICE SW
SERVICE
NORMAL
Q711
Q781
TP-D
Q202
Q124
Q122
Q111
KV
Q857
Q858
L230
IC101
IF/Deflection/Colour
Q351
Q352
TP-E1
IC451
Q436
Q435
TP-F
TP-E2
TP-A
FBT
T471
H-out
Q432
T431
H-drive
Q434
VR431
V-SIZE
Q854
1H Delay
IC270
VR401
H-CENTER
X101
SAW
VR120
AGC
Q101
T102
L101
K850
K801
SCART
AJ1
TP-H
TP-G
A101
Tuner
IC710
Band SW
FOCUS ADJ.
H-WIDTH CONFIRM
V-SIZE ADJ.
H-CENTER ADJ.
TU-AGC ADJ.
GRAY SCALE AND TRACKING ADJ.
B-DRIVE
R-DRIVE
B-BIAS
G-BIAS
R-BIAS
VR601
VR611
VR602
VR622
VR612
Q601
Q621
Q611
Q640
K6P
K6Q
TP6E
CRT BOARD

SERVICE CONTROL ADJUSTMENT

B1 POWER SUPPLY ADJUSTMENT

1. Set VR351 to be mechanical center before pressing the main switch.
2. Tune the receiver to PAL circular pattern.
3. Set brightness and contrast controls to normal.
4. Connect digital V-meter to R351.
5. By using VR351, adjust voltage to 130 ± 0.5 V.

TU-AFT ADJUSTMENT

1. Tune the receiver to the clearest station.
2. By using L230, adjust AFT to obtain the best picture.

AGC ADJUSTMENT

NOTE: ***Do not attempt this adjustment with weak signal.***

1. Tune the receiver to the clearest station.
2. Set AGC VR(VR120) in direction which causes snow noise to appear, then in the opposite direction until snow noise just disappears.

GREY SCALE ADJUSTMENT

[SCREEN VR ADJUSTMENT]

1. Tune the receiver to black and white pattern.
2. Set brightness control to display centre and contrast control to normal.
3. Set SW220 to "SERVICE" position.
4. Set VR601and VR611 to be mechanical center.
5. Turn VR602, VR612 and VR622 fully counter-clockwise.
6. Set screen VR for one colour to be just visible.

[BIAS VR ADJUSTMENT]

7. By using VR602, VR612 or VR622, adjust line to be white.
8. Set SW220 to "NORMAL" position.

[DRIVE VR ADJUSTMENT]

9. By using VR601 and VR611, adjust white balance.

HIGH VOLTAGE & WIDTH CONFIRM

[HIGH VOLTAGE CONFIRM]

1. Tune the receiver to PAL circular pattern.
2. Set brightness and contrast controls to normal.
3. Connect digital V-meter to test point (+) "TP-H" and (-) "TP-G", and high voltage meter to CRT anode.
4. Confirm high voltage to be 21.0 ± 1 KV at beam current 0.7 ± 0.05, and less than 25.0 KV at 0 beam current.

[H-WIDTH CONFIRM]

5. If H-width is too wide or narrow, connect or disconnect AJ1.
6. Reconfirm high voltage.

H-CENTER ADJUSTMENT

1. Tune the receiver to PAL circular pattern.
2. Adjust H-center by using VR401.

V-SIZE ADJUSTMENT

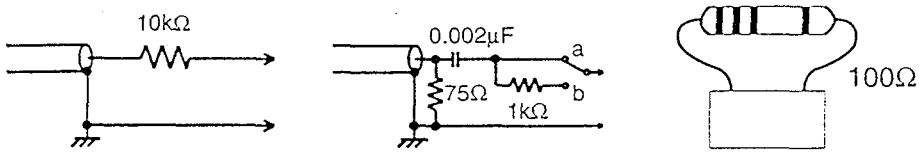
1. Tune the receiver to PAL circular pattern.
2. Adjust V-size by using VR431.

FOCUS ADJUSTMENT

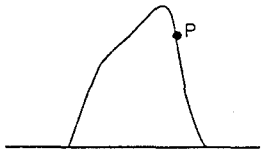
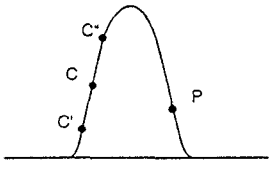
By using FOCUS VR, adjust focus control for well scanning lines.

CIRCUIT ALIGNMENT

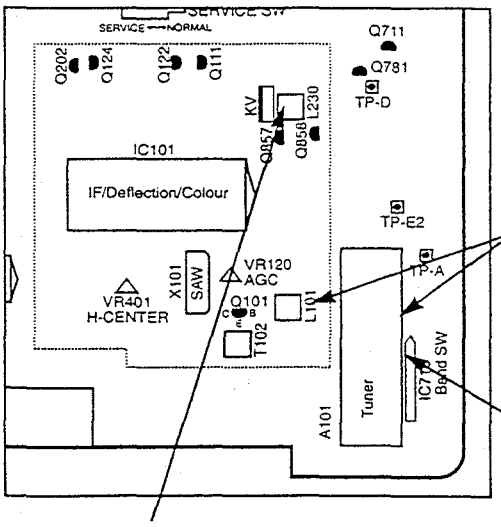
VIF ALIGNMENT



Input probe | Output probe | Damping R

		DETECTOR ADJUSTMENT	OVERALL WAVEFORM
SETTING	DC 15V	IC351-1	IC351-1
	AGC voltage	IC101-48 p	IC101-48 p
	Output probe	Tuner TP (Side b)	Tuner TP (Side b)
	Input probe	TP-F	TP-F
	Tuning voltage	Tuner TU	Tuner TU
	Band	FREE	FREE
	Damping R	----------	KV-1 & KV-2
	System SW	B/G	B/G
	Sweep ATT	30	30
Adjustment		By using L230, adjust "P" to be maximum amplitude.	By using Tuner converter coil and L101, make the marker positions to P=35 ± 10% C=35 ± 10%
VIF waveform			

MAIN BOARD



Overall waveform adjustment

Tuner converter coil & Tuner TR

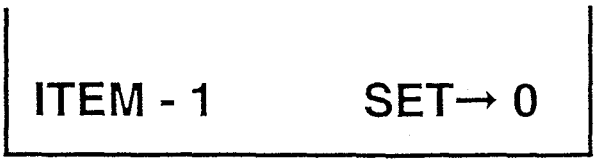
Detector adjustment

MEMORY IC REPLACEMENT: IMPORTANT NOTE

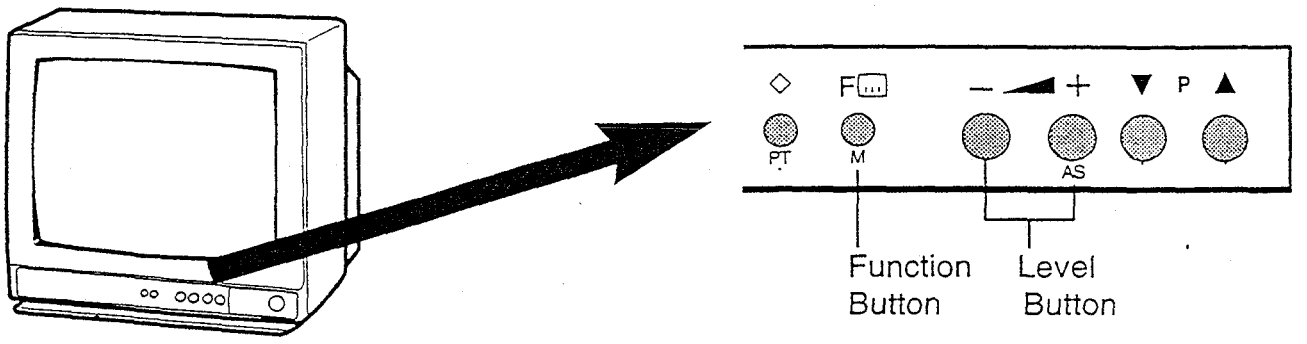
When IC790(X24C01P or X24C02P) is replaced, it is necessary to initialise the IC as follows.

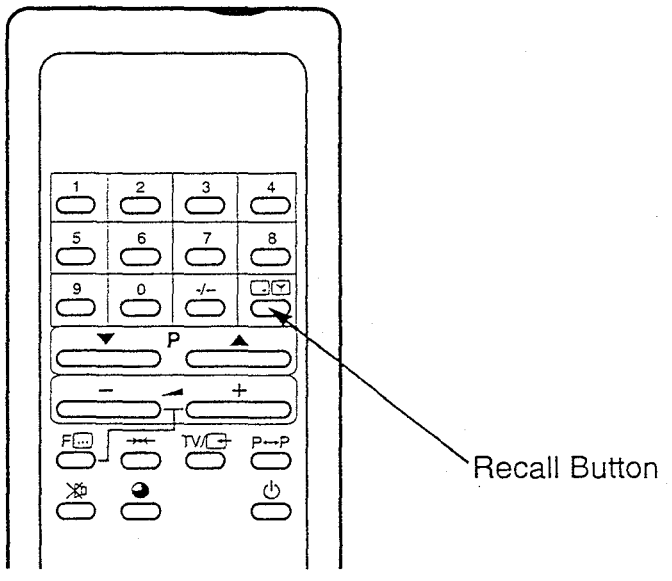
INITIALISATION OF MEMORY IC

1. When you press and hold the Function button on the TV set and press the Recall button on the RC transmitter, the following picture will appear on the screen.



2. Confirm SET number of all items is "0" by the Function button.
3. If it is not "0", change to "0" by the Level (+/-) button. (Changing the SET number, automatically memorized.)
4. Press the Recall button, to return the normal TV mode.





CHASSIS ELECTRICAL PARTS LIST

Product safety should be considered when a component replacement is made in any area of a receiver. Components indicated by a ⚠ mark in this parts list and the circuit diagram show components whose value have special significance to product safety. It is particularly recommended that only parts specified on the following parts list be used for components replacement pointed out by the mark.

Note Parts order must contain Service Ref. No., Part No., and descriptions.

Read description in the Capacitor and Resister as follows:

CAPACITOR

CERAMIC 100P K 50V

- 50V — Rated Voltage
- K — Tolerance Symbols:

Less than 10PF

A: Not specified	B: ±0.1PF	C: ±0.25PF
D: ±0.5PF	F: ±1PF	G: ±2PF
R: ±0.25-0PF	S: ±0-0.25PF	E: +0-1PF

More than 10PF

A: Not specified	B: ±0.1%	C: ±0.25%
D: ±0.5%	F: ±1%	G: ±2%
H: ±3%	J: ±5%	K: ±10%
L: ±15%	M: ±20%	N: ±30%
P: +100-0%	Q: +30-10%	T: +50-10%
U: +75-10%	V: +20-10%	W: +100-10%
X: +40-20%	Y: +150-10%	Z: +80-20%

- 100P — Rated value: P=pico farad, U=Micro farad
- CERAMIC — Material:

CERAMIC..... Ceramic
MT-PAPER..... Metallized Paper
POLYESTER..... Polyester
MT-POLYEST.... Metallized Polyester
POLYPRO..... Polypropylene
MT-POLYPRO.... Metallized Polypropylene
COMPO FILM..... Composite film
MT-COMPO..... Metallized Composite
STYRENE..... Styrene
TA-SOLID..... Tantalum Solid
AL-SOLID..... Aluminium Solid
ELECT..... Electrolytic
NP-ELECT..... Non-polarized Electrolytic
OS-SOLID..... Aluminium Solid with Organic Semiconductive Electrolytic
DL-ELECT..... Doble Layered Electrolytic

RESISTER

CARBON 4.7K J A 1/4W

- 1/4W — Rated Wattage
- A — Performance Symbols:
  A: General B: Non flammable Z: Low noise
  Other: Temperature coefficient
- J — Tolerance Symbols:
  A: ±0.05% B: ±0.1% C: ±0.25% D: ±0.5%
  F: ±1% G: ±2% J: ±5% K: ±10%
  M: ±20% P: +5-15%
- 4.7K — Rated value, ohms:
  K: 1,000, M: 1,000,000
- CARBON — Material:

CARBON..... Carbon
MT-FILM..... Metal Film
OXIDE-MT..... Oxide Metal Film
SOLID..... Composition
MT-GLAZE..... Metal Glaze
WIRE WOUND... Wire Wound
CERAMIC RES.. Ceramic
FUSIBLE RES.... Fusible

Ref. No.	Part No.	Description
	610 248 9613	MAIN PCB ASSY-E7CE UE2783B
		TRANSISTOR
Q101	405 014 9207	TR 2SC2570A
Q111	406 007 2106	TR JC546A
	406 007 2007	TR JC546B
	405 019 1909	TR 2SC536-E-NP
	405 019 2708	TR 2SC536-F-NP
	405 019 3804	TR 2SC536-G-NP
Q122	406 007 2106	TR JC546A
	406 007 2007	TR JC546B
	405 019 1909	TR 2SC536-E-NP
	405 019 2708	TR 2SC536-F-NP
	405 019 3804	TR 2SC536-G-NP
Q124	405 004 4205	TR 2SA608-E-CTV-NP
	405 004 4309	TR 2SA608-F-CTV-NP
	405 028 7909	TR 2SA608-G-CTV-NP
Q172	406 007 2106	TR JC546A
	406 007 2007	TR JC546B
	405 019 1909	TR 2SC536-E-NP
	405 019 2708	TR 2SC536-F-NP
	405 019 3804	TR 2SC536-G-NP
Q202	406 007 2106	TR JC546A
	406 007 2007	TR JC546B
	405 019 1909	TR 2SC536-E-NP
	405 019 2708	TR 2SC536-F-NP
	405 019 3804	TR 2SC536-G-NP
Q311	406 007 1901	TR JC556A
	406 007 1802	TR JC556B
	405 004 4205	TR 2SA608-E-CTV-NP
	405 004 4309	TR 2SA608-F-CTV-NP
	405 028 7909	TR 2SA608-G-CTV-NP
Q312	405 058 0208	TR 2SC3807-R-CTV-YA
Q313	405 022 8506	TR 2SD1710-CTV-YB
Q351	405 009 6907	TR 2SB985-S
	405 009 7003	TR 2SB985-T
Q352	406 007 2106	TR JC546A
	406 007 2007	TR JC546B
	405 019 1909	TR 2SC536-E-NP
	405 019 2708	TR 2SC536-F-NP
	405 019 3804	TR 2SC536-G-NP
Q353	406 007 2106	TR JC546A
	406 007 2007	TR JC546B
	405 019 1909	TR 2SC536-E-NP
	405 019 2708	TR 2SC536-F-NP
	405 019 3804	TR 2SC536-G-NP
Q354	405 008 4805	TR 2SB764-E
Q431	405 014 2406	TR 2SC2383-O(SAN)
	405 014 2505	TR 2SC2383-R(SAN)
Q432	405 022 6601	TR 2SD1649-CTV-YB
Q434	406 007 2106	TR JC546A
	406 007 2007	TR JC546B
	405 019 1909	TR 2SC536-E-NP
	405 019 2708	TR 2SC536-F-NP
	405 019 3804	TR 2SC536-G-NP
Q436	406 007 2106	TR JC546A
	406 007 2007	TR JC546B
	405 019 1909	TR 2SC536-E-NP
	405 019 2708	TR 2SC536-F-NP

Ref. No.	Part No.	Description
	405 019 3804	TR 2SC536-G-NP
Q437	406 007 2106	TR JC546A
	406 007 2007	TR JC546B
	405 019 1909	TR 2SC536-E-NP
	405 019 2708	TR 2SC536-F-NP
	405 019 3804	TR 2SC536-G-NP
Q703	406 007 2106	TR JC546A
	406 007 2007	TR JC546B
	405 019 1909	TR 2SC536-E-NP
	405 019 2708	TR 2SC536-F-NP
	405 019 3804	TR 2SC536-G-NP
Q708	406 007 1901	TR JC556A
	406 007 1802	TR JC556B
	405 004 4205	TR 2SA608-E-CTV-NP
	405 004 4809	TR 2SA608-F-CTV-NP
	405 028 7909	TR 2SA608-G-CTV-NP
Q711	405 118 4207	TR PH2369
Q713	406 007 2106	TR JC546A
	406 007 2007	TR JC546B
	405 019 1909	TR 2SC536-E-NP
	405 019 2708	TR 2SC536-F-NP
	405 019 3804	TR 2SC536-G-NP
Q714	406 007 2106	TR JC546A
	406 007 2007	TR JC546B
	405 019 1909	TR 2SC536-E-NP
	405 019 2708	TR 2SC536-F-NP
	405 019 3804	TR 2SC536-G-NP
Q722	406 007 2106	TR JC546A
	406 007 2007	TR JC546B
	405 019 1909	TR 2SC536-E-NP
	405 019 2708	TR 2SC536-F-NP
	405 019 3804	TR 2SC536-G-NP
Q781	406 007 2106	TR JC546A
	406 007 2007	TR JC546B
	405 019 1909	TR 2SC536-E-NP
	405 019 2708	TR 2SC536-F-NP
	405 019 3804	TR 2SC536-G-NP
Q840	406 007 2106	TR JC546A
	406 007 2007	TR JC546B
	405 019 1909	TR 2SC536-E-NP
	405 019 2708	TR 2SC536-F-NP
	405 019 3804	TR 2SC536-G-NP
Q854	406 007 2106	TR JC546A
	406 007 2007	TR JC546B
	405 019 1909	TR 2SC536-E-NP
	405 019 2708	TR 2SC536-F-NP
	405 019 3804	TR 2SC536-G-NP
Q857	406 007 2106	TR JC546A
	406 007 2007	TR JC546B
	405 019 1909	TR 2SC536-E-NP
	405 019 2708	TR 2SC536-F-NP
	405 019 3804	TR 2SC536-G-NP
Q858	406 007 1901	TR JC556A
	406 007 1802	TR JC556B
	405 004 4205	TR 2SA608-E-CTV-NP
	405 004 4809	TR 2SA608-F-CTV-NP
	405 028 7909	TR 2SA608-G-CTV-NP
INTEGRATED CIRCUIT		
IC101	409 309 6209	IC TDA8361/N3
IC171	409 073 1509	IC AN5265
IC270	409 291 0605	IC TDA4661/V2
	409 322 0505	IC TDA4662/V1
IC351	409 143 3402	IC AN78M12-LB
	409 026 9507	IC L78M12-RA
IC352	409 285 5203	IC L78M08-RA
IC451	409 183 5008	IC LA7832
IC701	410 184 8608	IC M37211M2-524SP
IC710	409 019 6209	IC LA7910
IC790	409 247 7702	IC ST24C02AB1
	409 281 8307	IC 24C02A/P
CAPACITOR		

Ref. No.	Part No.	Description
C101	403 201 5001	ELECT 330U M 16V
C102	403 248 2001	ELECT 4.7U M 25V
C103	403 248 2001	ELECT 4.7U M 25V
C104	403 248 2001	ELECT 4.7U M 25V
C105	403 248 1400	ELECT 1U M 50V
C106	403 233 1507	ELECT 4.7U M 50V
C108	403 013 1901	CERAMIC 150P J 50V
C109	403 011 3808	CERAMIC 120P J 50V
C110	403 026 1103	CERAMIC 47P J 50V
C113	403 069 8305	CERAMIC 0.01U Z 50V
C114	403 069 8305	CERAMIC 0.01U Z 50V
C115	403 069 8305	CERAMIC 0.01U Z 50V
C117	403 208 6308	ELECT 220U M 16V
C121	403 270 2901	MT-POLYEST 0.1U K 63V
	403 067 5603	MT-COMPO 0.1U J 50V
	403 243 6806	MT-COMPO 0.1U J 50V
C122	403 270 2901	MT-POLYEST 0.1U K 63V
	403 067 5603	MT-COMPO 0.1U J 50V
	403 243 6806	MT-COMPO 0.1U J 50V
C123	403 233 0807	ELECT 10U M 50V
C126	403 061 2202	POLYESTER 3900P K 50V
	403 061 2400	POLYESTER 3900P K 50V
	403 179 1401	POLYESTER 3900P K 50V
C127	403 069 0507	CERAMIC 1000P K 50V
C128	403 248 2803	ELECT 2.2U M 50V
C129	403 028 2009	CERAMIC 56P J 50V
C130	403 069 8305	CERAMIC 0.01U Z 50V
C131	403 248 1608	ELECT 47U M 16V
C132	403 270 2901	MT-POLYEST 0.1U K 63V
	403 067 5603	MT-COMPO 0.1U J 50V
	403 243 6806	MT-COMPO 0.1U J 50V
C134	403 060 6102	POLYESTER 3300P K 50V
	403 060 6300	POLYESTER 3300P K 50V
	403 179 1807	POLYESTER 3300P K 50V
C135	403 270 2901	MT-POLYEST 0.1U K 63V
	403 067 5603	MT-COMPO 0.1U J 50V
	403 243 6806	MT-COMPO 0.1U J 50V
C136	403 199 3102	ELECT 1000U M 10V
C137	403 270 3908	MT-POLYEST 0.47U K 63V
	403 067 7805	MT-COMPO 0.47U J 50V
	403 264 2207	MT-COMPO 0.47U J 50V
C138	403 248 2803	ELECT 2.2U M 50V
C141	403 011 3808	CERAMIC 120P J 50V
C172	403 270 3908	MT-POLYEST 0.47U K 63V
	403 067 7805	MT-COMPO 0.47U J 50V
	403 264 2207	MT-COMPO 0.47U J 50V
C173	403 056 7908	POLYESTER 1000P K 50V
	403 056 8103	POLYESTER 1000P K 50V
	403 179 3900	POLYESTER 1000P K 50V
C174	403 258 3302	ELECT 33U M 16V
C178	403 258 3203	ELECT 22U M 16V
C180	403 270 2901	MT-POLYEST 0.1U K 63V
	403 067 5603	MT-COMPO 0.1U J 50V
	403 243 6806	MT-COMPO 0.1U J 50V
C181	403 218 8101	ELECT 1000U M 25V
C182	403 248 1905	ELECT 10U M 16V
C183	403 248 1905	ELECT 10U M 16V
C184	403 270 3403	MT-POLYEST 0.22U K 63V
	403 067 6709	MT-COMPO 0.22U J 50V
	403 263 5704	MT-COMPO 0.22U J 50V
C185	403 199 9708	ELECT 470U M 25V
C187	403 270 3403	MT-POLYEST 0.22U K 63V
	403 067 6709	MT-COMPO 0.22U J 50V
	403 263 5704	MT-COMPO 0.22U J 50V
C188	403 233 1507	ELECT 4.7U M 50V
C202	403 270 2901	MT-POLYEST 0.1U K 63V
	403 067 5603	MT-COMPO 0.1U J 50V
	403 243 6806	MT-COMPO 0.1U J 50V
C203	403 061 8105	POLYESTER 4700P K 50V
	403 061 8303	POLYESTER 4700P K 50V
	403 179 1104	POLYESTER 4700P K 50V
C204	403 270 2901	MT-POLYEST 0.1U K 63V

Ref. No.	Part No.	Description
	403 067 5603	MT-COMPO 0.1U J 50V
	403 243 6806	MT-COMPO 0.1U J 50V
C205	403 270 2901	MT-POLYEST 0.1U K 63V
	403 067 5603	MT-COMPO 0.1U J 50V
	403 243 6806	MT-COMPO 0.1U J 50V
C206	403 270 3908	MT-POLYEST 0.47U K 63V
	403 067 7805	MT-COMPO 0.47U J 50V
	403 264 2207	MT-COMPO 0.47U J 50V
C207	403 248 2803	ELECT 2.2U M 50V
C208	403 069 8305	CERAMIC 0.01U Z 50V
C209	403 270 2901	MT-POLYEST 0.1U K 63V
	403 067 5603	MT-COMPO 0.1U J 50V
	403 243 6806	MT-COMPO 0.1U J 50V
C210	403 069 8305	CERAMIC 0.01U Z 50V
C211	403 233 0807	ELECT 10U M 50V
C212	403 070 7403	CERAMIC 150P K 50V
C215	403 270 3908	MT-POLYEST 0.47U K 63V
	403 067 7805	MT-COMPO 0.47U J 50V
	403 264 2207	MT-COMPO 0.47U J 50V
C216	403 270 2901	MT-POLYEST 0.1U K 63V
	403 067 5603	MT-COMPO 0.1U J 50V
	403 243 6806	MT-COMPO 0.1U J 50V
C217	403 233 1507	ELECT 4.7U M 50V
C231	403 085 7405	NP-ELECT 10U M 25V
C233	403 233 0807	ELECT 10U M 50V
C270	403 059 5901	POLYESTER 0.022U K 50V
	403 059 6205	POLYESTER 0.022U K 50V
	403 179 2408	POLYESTER 0.022U K 50V
C271	403 069 0507	CERAMIC 1000P K 50V
C272	403 069 0507	CERAMIC 1000P K 50V
C275	403 248 1905	ELECT 10U M 16V
C301	404 047 3602	MT-POLYEST 0.1U M 125V
	404 044 0901	MT-COMPO 0.1U M 250V
C302	404 047 3602	MT-POLYEST 0.1U M 125V
	404 044 0901	MT-COMPO 0.1U M 250V
C303	403 076 7100	CERAMIC 1000P M 1K
C304	403 076 7100	CERAMIC 1000P M 1K
C305	403 076 7100	CERAMIC 1000P M 1K
C306	403 076 7100	CERAMIC 1000P M 1K
C307	404 031 1003	ELECT 100U M 400V
	404 059 6400	ELECT 100U M 385V
	404 004 6806	ELECT 100U M 400V
	404 052 2003	ELECT 100U M 400V
C314	403 061 4008	POLYESTER 0.039U K 50V
	403 061 4206	POLYESTER 0.039U K 50V
	403 179 1302	POLYESTER 0.039U K 50V
C315	403 057 6801	POLYESTER 0.012U J 50V
	403 214 5203	POLYESTER 0.012U J 50V
	403 178 9408	POLYESTER 0.012U J 50V
C316	403 165 8407	CERAMIC 680P K 2K
	403 275 8205	CERAMIC 680P K 2K
	403 232 2109	CERAMIC 680P K 2K
	403 186 1104	CERAMIC 680P K 2K
C317	403 059 5901	POLYESTER 0.022U K 50V
	403 059 6205	POLYESTER 0.022U K 50V
	403 179 2408	POLYESTER 0.022U K 50V
⚠C331	404 059 9203	CERAMIC 1000P M 400V
	404 060 6000	CERAMIC 1000P M 400V
⚠C334	404 059 9203	CERAMIC 1000P M 400V
	404 060 6000	CERAMIC 1000P M 400V
C351	403 165 8605	CERAMIC 470P K 2K
	403 275 8106	CERAMIC 470P K 2K
	403 232 1805	CERAMIC 470P K 2K
	403 186 1302	CERAMIC 470P K 2K
C354	403 165 6106	CERAMIC 470P K 1K
	403 269 1809	CERAMIC 470P K 1K
	403 232 0501	CERAMIC 470P K 1K
	403 186 2903	CERAMIC 470P K 1K
C361	404 042 4505	ELECT 220U M 160V
C362	403 134 1309	ELECT 10U M 160V
	403 275 6904	ELECT 10U M 160V
	403 275 7000	ELECT 10U M 160V

Ref. No.	Part No.	Description
C363	403 154 1907	ELECT 1000U M 35V
C364	403 148 0404	ELECT 1000U M 25V
	403 205 3409	ELECT 1000U M 25V
	403 190 2708	ELECT 1000U M 25V
C365	403 148 0404	ELECT 1000U M 25V
	403 205 3409	ELECT 1000U M 25V
	403 190 2708	ELECT 1000U M 25V
C371	403 126 4509	ELECT 100U M 16V
	403 218 0600	ELECT 100U M 16V
	403 197 6600	ELECT 100U M 16V
C372	403 233 0302	ELECT 100U M 16V
C383	403 160 0000	ELECT 470U M 10V
C400	403 014 0200	CERAMIC 18P J 50V
C401	403 270 2901	MT-POLYEST 0.1U K 63V
	403 067 5603	MT-COMPO 0.1U J 50V
	403 243 6806	MT-COMPO 0.1U J 50V
C402	403 270 3809	MT-POLYEST 0.047U K 63V
	403 067 7706	MT-COMPO 0.047U J 50V
	403 256 1102	MT-COMPO 0.047U J 50V
C403	403 061 8105	POLYESTER 4700P K 50V
	403 061 8303	POLYESTER 4700P K 50V
	403 179 1104	POLYESTER 4700P K 50V
C404	403 086 2300	NP-ELECT 1U M 50V
C405	403 060 0506	POLYESTER 2700P K 50V
	403 060 0704	POLYESTER 2700P K 50V
	403 179 2200	POLYESTER 2700P K 50V
C406	403 059 5901	POLYESTER 0.022U K 50V
	403 059 6205	POLYESTER 0.022U K 50V
	403 179 2408	POLYESTER 0.022U K 50V
C407	403 160 0000	ELECT 470U M 10V
C409	403 074 8901	CERAMIC 680P K 50V
C410	403 062 4403	POLYESTER 5600P J 50V
	403 138 5600	POLYESTER 5600P J 50V
	403 179 0800	POLYESTER 5600P J 50V
C431	403 270 4004	MT-POLYEST 0.056U K 63V
	403 067 7904	MT-COMPO 0.056U J 50V
	403 246 2102	MT-COMPO 0.056U J 50V
C432	403 075 7101	CERAMIC 1000P K 500V
C433	403 076 3102	CERAMIC 3900P K 500V
C434	403 229 1207	ELECT 47U M 35V
C435	404 044 1700	MT-POLYPRO 5400P J 1.5K
	404 046 8905	MT-POLYPRO 5400P J 1.5K
C436	403 165 7509	CERAMIC 270P K 3K
	403 269 0406	CERAMIC 270P K 3K
	403 232 2901	CERAMIC 270P K 3K
	403 186 0305	CERAMIC 270P K 3K
C437	403 270 3908	MT-POLYEST 0.47U K 63V
	403 067 7805	MT-COMPO 0.47U J 50V
	403 264 2207	MT-COMPO 0.47U J 50V
C441	403 082 7804	POLYPRO 0.18U J 200V
C442	403 082 7408	POLYPRO 0.15U J 200V
C443	403 134 1903	ELECT 4.7U M 160V
C444	403 165 7202	CERAMIC 390P K 3K
	403 275 8403	CERAMIC 390P K 3K
	403 232 3106	CERAMIC 390P K 3K
	403 185 9903	CERAMIC 390P K 3K
C445	403 076 1405	CERAMIC 2700P K 500V
C451	403 218 8101	ELECT 1000U M 25V
C452	403 217 1103	ELECT 220U M 35V
C453	403 023 9706	CERAMIC 39P J 50V
C454	403 069 8305	CERAMIC 0.01U Z 50V
C455	403 076 6103	CERAMIC 820P K 500V
C456	403 233 0807	ELECT 10U M 50V
C458	403 233 0807	ELECT 10U M 50V
C461	403 218 8101	ELECT 1000U M 25V
C463	403 065 9801	MT-POLYEST 0.22U K 100V
	403 188 0907	MT-POLYEST 0.22U K 100V
C703	403 018 6208	CERAMIC 220P J 50V
C704	403 068 9006	CERAMIC 100P K 50V
C705	403 068 9006	CERAMIC 100P K 50V
C706	403 068 9006	CERAMIC 100P K 50V
C709	403 248 1400	ELECT 1U M 50V

Ref. No.	Part No.	Description
C711	403 248 2001	ELECT 4.7U M 25V
C712	403 248 1400	ELECT 1U M 50V
C713	403 248 1400	ELECT 1U M 50V
C716	403 233 1507	ELECT 4.7U M 50V
C717	403 068 9006	CERAMIC 100P K 50V
C718	403 071 5606	CERAMIC 220P K 50V
C719	403 069 0507	CERAMIC 1000P K 50V
C721	403 270 2901	MT-POLYEST 0.1U K 63V
	403 067 5603	MT-COMPO 0.1U J 50V
	403 243 6806	MT-COMPO 0.1U J 50V
C722	403 248 1608	ELECT 47U M 16V
C723	403 026 0700	CERAMIC 47P J 50V
C724	403 026 0700	CERAMIC 47P J 50V
C725	403 069 8305	CERAMIC 0.01U Z 50V
C727	403 270 2901	MT-POLYEST 0.1U K 63V
	403 067 5603	MT-COMPO 0.1U J 50V
	403 243 6806	MT-COMPO 0.1U J 50V
C729	403 248 1905	ELECT 10U M 16V
C731	403 270 3403	MT-POLYEST 0.22U K 63V
	403 067 6709	MT-COMPO 0.22U J 50V
	403 263 5704	MT-COMPO 0.22U J 50V
C732	403 270 2901	MT-POLYEST 0.1U K 63V
	403 067 5603	MT-COMPO 0.1U J 50V
	403 243 6806	MT-COMPO 0.1U J 50V
C744	403 068 9006	CERAMIC 100P K 50V
C745	403 069 8305	CERAMIC 0.01U Z 50V
C746	403 026 0809	CERAMIC 47P J 50V
C791	403 068 9006	CERAMIC 100P K 50V
C854	403 248 1905	ELECT 10U M 16V
C858	403 069 8305	CERAMIC 0.01U Z 50V
C873	403 248 2803	ELECT 2.2U M 50V
C874	403 270 3908	MT-POLYEST 0.47U K 63V
	403 067 7805	MT-COMPO 0.47U J 50V
	403 264 2207	MT-COMPO 0.47U J 50V
RESISTOR		
R101	401 025 7805	CARBON 2.2K JA 1/6W
R103	401 012 4503	CARBON 100 JA 1/4W
R104	401 027 2600	CARBON 5.6K JA 1/6W
R105	401 024 7004	CARBON 1K JA 1/6W
R106	401 025 7409	CARBON 220 JA 1/6W
R107	401 026 3707	CARBON 33 JA 1/6W
R121	401 020 2904	CARBON 47K JA 1/4W
R122	401 025 8703	CARBON 220K JA 1/6W
R123	401 025 8703	CARBON 220K JA 1/6W
R124	401 027 5502	CARBON 6.8K JA 1/6W
R125	401 025 3807	CARBON 180 JA 1/6W
R126	401 027 2600	CARBON 5.6K JA 1/6W
R127	401 024 6700	CARBON 100 JA 1/6W
R128	401 021 3009	CARBON 5.6K JA 1/4W
R129	401 012 7009	CARBON 10K JA 1/4W
R131	401 027 5502	CARBON 6.8K JA 1/6W
R132	401 027 0309	CARBON 47K JA 1/6W
R133	401 025 3807	CARBON 180 JA 1/6W
R134	401 024 7004	CARBON 1K JA 1/6W
R135	401 027 2303	CARBON 560 JA 1/6W
R138	401 025 7409	CARBON 220 JA 1/6W
R147	401 022 0809	CARBON 68 JA 1/4W
R152	401 027 5205	CARBON 680 JA 1/6W
R153	401 026 9303	CARBON 47 JA 1/6W
R154	401 026 3905	CARBON 330 JA 1/6W
R170	401 014 5201	CARBON 15K JA 1/4W
R171	401 026 3707	CARBON 33 JA 1/6W
R172	401 021 1906	CARBON 560 JA 1/4W
R173	401 025 1902	CARBON 15K JA 1/6W
R177	401 016 4806	CARBON 22K JA 1/4W
R178	401 012 7009	CARBON 10K JA 1/4W
R183	401 024 7004	CARBON 1K JA 1/6W
R184	401 026 7408	CARBON 39K JA 1/6W
R185	401 017 6205	CARBON 3.3 JA 1/4W
R202	401 024 7707	CARBON 100K JA 1/6W
R204	401 012 4503	CARBON 100 JA 1/4W
R206	401 024 6700	CARBON 100 JA 1/6W

Ref. No.	Part No.	Description
R207	401 024 6700	CARBON 100 JA 1/6W
R208	401 024 6700	CARBON 100 JA 1/6W
R209	401 027 5502	CARBON 6.8K JA 1/6W
R210	401 025 1902	CARBON 15K JA 1/6W
R213	401 025 8208	CARBON 22K JA 1/6W
R214	401 024 7400	CARBON 10K JA 1/6W
R215	401 025 4200	CARBON 1.8K JA 1/6W
R219	401 026 6609	CARBON 390 JA 1/6W
R220	401 014 2903	CARBON 150 JA 1/4W
R221	401 012 7009	CARBON 10K JA 1/4W
R222	401 024 9701	CARBON 12K JA 1/6W
R230	401 016 4806	CARBON 22K JA 1/4W
R231	401 016 5803	CARBON 220K JA 1/4W
R232	401 012 5708	CARBON 1K JA 1/4W
R233	401 000 7509	SOLID 1.5K KA 1/2W
R234	401 010 3102	CARBON 470 JA 1/2W
R235	401 019 3004	CARBON 39K JA 1/4W
R236	401 017 1804	CARBON 2.7K JA 1/4W
R237	401 016 3809	CARBON 2.2K JA 1/4W
R275	401 016 2604	CARBON 220 JA 1/4W
R301	401 008 8607	CARBON 220K JA 1/2W
R302	402 060 8109	WIRE WOUND 3.9 KA 5W
R311	401 021 3009	CARBON 5.6K JA 1/4W
R315	401 016 4806	CARBON 22K JA 1/4W
R317	401 021 1906	CARBON 560 JA 1/4W
R319	401 016 2604	CARBON 220 JA 1/4W
R320	401 007 5805	CARBON 120K JA 1/2W
R321	401 007 5805	CARBON 120K JA 1/2W
R322	401 014 5201	CARBON 15K JA 1/4W
R324	401 069 6000	OXIDE-MT 82 JA 2W
	401 069 6208	OXIDE-MT 82 JA 2W
R325	401 069 1708	OXIDE-MT 68 JA 2W
R326	401 016 3304	CARBON 2.2K GA 1/4W
⚠R331	402 000 8305	SOLID 5.6M KA 1/2W
⚠R332	402 000 8305	SOLID 5.6M KA 1/2W
R350	401 012 8105	CARBON 100K JA 1/4W
R351	401 066 7901	OXIDE-MT 22K JA 2W
	401 066 8007	OXIDE-MT 22K JA 2W
R352	401 066 9004	OXIDE-MT 27 JA 2W
	401 066 9103	OXIDE-MT 27 JA 2W
R353	401 020 2003	CARBON 4.7K JA 1/4W
R354	401 014 6109	CARBON 150K JA 1/4W
R355	401 010 4307	CARBON 47K JA 1/2W
R356	401 025 8208	CARBON 22K JA 1/6W
R357	402 064 4404	FUSIBLE RES 10 J- 1W
R359	401 006 7602	CARBON 1 JA 1/2W
R360	401 059 3903	OXIDE-MT 1.5K JA 1W
	401 065 7506	OXIDE-MT 1.5K JA 2W
R361	401 064 6104	OXIDE-MT 10 JA 2W
	401 064 6302	OXIDE-MT 10 JA 2W
R362	401 065 5601	OXIDE-MT 15 JA 2W
	401 065 5809	OXIDE-MT 15 JA 2W
R364	401 012 7009	CARBON 10K JA 1/4W
R365	401 019 1901	CARBON 3.9K JA 1/4W
R366	401 012 7009	CARBON 10K JA 1/4W
R367	401 013 5301	CARBON 1.2K JA 1/4W
R369	401 012 5708	CARBON 1K JA 1/4W
R370	401 023 2802	CARBON 8.2K JA 1/4W
R381	401 066 5907	OXIDE-MT 220 JA 2W
	401 066 6102	OXIDE-MT 220 JA 2W
R400	401 027 0309	CARBON 47K JA 1/6W
R401	401 024 6700	CARBON 100 JA 1/6W
R402	401 024 8001	CARBON 1M JA 1/6W
R403	401 024 6700	CARBON 100 JA 1/6W
R404	401 025 8208	CARBON 22K JA 1/6W
R405	401 024 6700	CARBON 100 JA 1/6W
R406	401 026 7606	CARBON 390K JA 1/6W
R407	401 025 8208	CARBON 22K JA 1/6W
R408	401 024 6700	CARBON 100 JA 1/6W
R409	401 026 9907	CARBON 4.7K JA 1/6W
R410	401 025 8208	CARBON 22K JA 1/6W
R412	401 027 0309	CARBON 47K JA 1/6W

Ref. No.	Part No.	Description
R413	401 026 9907	CARBON 4.7K JA 1/6W
R414	401 026 1000	CARBON 2.7K JA 1/6W
R415	401 026 4605	CARBON 33K JA 1/6W
R416	401 012 7009	CARBON 10K JA 1/4W
R417	401 025 8208	CARBON 22K JA 1/6W
R418	401 026 1307	CARBON 27K JA 1/6W
R432	401 024 7004	CARBON 1K JA 1/6W
R433	401 007 1104	CARBON 1K JA 1/2W
R434	401 009 0907	CARBON 270 JA 1/2W
R435	402 068 6008	WIRE WOUND 12 KA 5W
R436	401 014 5201	CARBON 15K JA 1/4W
R442	401 068 8807	OXIDE-MT 5.6K JA 2W
R443	401 016 5803	CARBON 220K JA 1/4W
R444	401 058 3706	OXIDE-MT 1K JA 1W
	401 064 8603	OXIDE-MT 1K JA 2W
R450	401 027 3003	CARBON 56K JA 1/6W
R451	401 011 4306	CARBON 8.2 JA 1/2W
R452	401 025 1902	CARBON 15K JA 1/6W
R453	401 027 8602	CARBON 8.2K JA 1/6W
R454	401 025 1308	CARBON 150 JA 1/6W
R455	401 027 2600	CARBON 5.6K JA 1/6W
R456	401 020 2003	CARBON 4.7K JA 1/4W
R457	401 027 2600	CARBON 5.6K JA 1/6W
R459	401 006 8401	CARBON 1.5 JA 1/2W
R460	401 008 0908	CARBON 180 JA 1/2W
R461	401 020 2003	CARBON 4.7K JA 1/4W
R462	401 020 2003	CARBON 4.7K JA 1/4W
R467	401 007 1104	CARBON 1K JA 1/2W
R481	401 057 4704	OXIDE-MT 0.39 JA 1W
R707	401 012 4503	CARBON 100 JA 1/4W
R708	401 024 9701	CARBON 12K JA 1/6W
R709	401 023 3700	CARBON 82K JA 1/4W
R710	401 024 7004	CARBON 1K JA 1/6W
R711	401 026 4308	CARBON 3.3K JA 1/6W
R712	401 025 4200	CARBON 1.8K JA 1/6W
R713	401 025 1902	CARBON 15K JA 1/6W
R715	401 012 7009	CARBON 10K JA 1/4W
R716	401 026 4605	CARBON 33K JA 1/6W
R717	401 024 9305	CARBON 1.2K JA 1/6W
R718	401 026 7002	CARBON 3.9K JA 1/6W
R720	401 012 7009	CARBON 10K JA 1/4W
R721	401 018 4903	CARBON 33K JA 1/4W
R723	401 024 7004	CARBON 1K JA 1/6W
R724	401 025 1902	CARBON 15K JA 1/6W
R726	401 012 7009	CARBON 10K JA 1/4W
R727	401 027 9005	CARBON 82K JA 1/6W
R728	401 025 1902	CARBON 15K JA 1/6W
R729	401 026 3905	CARBON 330 JA 1/6W
R734	401 026 9907	CARBON 4.7K JA 1/6W
R735	401 027 8602	CARBON 8.2K JA 1/6W
R736	401 025 1605	CARBON 1.5K JA 1/6W
R738	401 017 2801	CARBON 27K JA 1/4W
R743	401 025 1308	CARBON 150 JA 1/6W
R744	401 026 9907	CARBON 4.7K JA 1/6W
R745	401 025 1308	CARBON 150 JA 1/6W
R746	401 026 9907	CARBON 4.7K JA 1/6W
R747	401 024 6700	CARBON 100 JA 1/6W
R748	401 024 6700	CARBON 100 JA 1/6W
R749	401 026 7002	CARBON 3.9K JA 1/6W
R750	401 026 4308	CARBON 3.3K JA 1/6W
R758	401 021 3009	CARBON 5.6K JA 1/4W
R759	401 016 3809	CARBON 2.2K JA 1/4W
R760	401 019 1901	CARBON 3.9K JA 1/4W
R761	401 064 9907	OXIDE-MT 10K JA 2W
R762	401 024 7400	CARBON 10K JA 1/6W
R763	401 025 1902	CARBON 15K JA 1/6W
R764	401 025 4903	CARBON 180K JA 1/6W
R766	401 027 2600	CARBON 5.6K JA 1/6W
R767	401 026 9907	CARBON 4.7K JA 1/6W
R768	401 020 0801	CARBON 470 JA 1/4W
R769	401 025 8208	CARBON 22K JA 1/6W
R772	401 012 5708	CARBON 1K JA 1/4W
R773	401 012 5708	CARBON 1K JA 1/4W
R776	401 025 8208	CARBON 22K JA 1/6W
R780	401 024 7707	CARBON 100K JA 1/6W
R781	401 020 2003	CARBON 4.7K JA 1/4W
R782	401 025 8208	CARBON 22K JA 1/6W
R786	401 024 7400	CARBON 10K JA 1/6W
R792	401 025 1902	CARBON 15K JA 1/6W
R796	401 026 6609	CARBON 390 JA 1/6W
R802	401 026 9600	CARBON 470 JA 1/6W
R811	401 024 7707	CARBON 100K JA 1/6W
R812	401 025 4606	CARBON 18K JA 1/6W
R815	401 015 3800	CARBON 18K JA 1/4W
R816	401 024 7400	CARBON 10K JA 1/6W
R821	401 024 7707	CARBON 100K JA 1/6W
R822	401 025 4606	CARBON 18K JA 1/6W
R823	401 027 5502	CARBON 6.8K JA 1/6W
R824	401 026 9907	CARBON 4.7K JA 1/6W
R825	401 021 3009	CARBON 5.6K JA 1/4W
R826	401 024 7400	CARBON 10K JA 1/6W
R841	401 025 8208	CARBON 22K JA 1/6W
R842	401 026 1000	CARBON 2.7K JA 1/6W
R851	401 024 9701	CARBON 12K JA 1/6W
R852	401 024 9701	CARBON 12K JA 1/6W
R853	401 027 2303	CARBON 560 JA 1/6W
R854	401 024 7707	CARBON 100K JA 1/6W
R856	401 027 6608	CARBON 75 JA 1/6W
R862	401 024 7004	CARBON 1K JA 1/6W
R863	401 024 9305	CARBON 1.2K JA 1/6W
R866	401 027 5205	CARBON 680 JA 1/6W
R868	401 027 6608	CARBON 75 JA 1/6W
R870	401 027 6608	CARBON 75 JA 1/6W
R873	401 027 2600	CARBON 5.6K JA 1/6W
R883	401 018 3807	CARBON 3.3K JA 1/4W
R884	401 024 7004	CARBON 1K JA 1/6W
R885	401 013 5301	CARBON 1.2K JA 1/4W
VARIABLE RESISTOR		
VR120	610 237 8726	VR B-10K
	610 239 7550	VR B-10K
VR351	610 237 8702	VR B-2.2K
	610 239 7574	VR B-2K
VR401	610 237 8726	VR B-10K
	610 239 7550	VR B-10K
VR431	610 230 8013	VR B-100
	610 232 7892	VR B-100
TRANSFORMER		
⚠T311	610 216 4534	CONVERTER TRANS
	610 236 2084	CONVERTER TRANS
T431	610 000 1053	DRIVE TRANS
	610 000 1060	DRIVE TRANS
⚠T471	645 000 0089	TRANS,FLYBACK
COIL		
L101	610 037 5727	S TRANS
L103	610 031 4177	PEAKING COIL
L125	610 031 3873	PEAKING COIL 10UHK
L141	610 031 3873	PEAKING COIL 10UHK
L161	610 031 3019	PEAKING COIL 10UHK
L204	610 029 6329	PEAKING COIL 4.7UH K
L230	610 037 4522	S COIL
L280	610 029 5926	PEAKING COIL 10UH K
L301	610 031 5945	LINE FILTER
	610 031 5976	LINE FILTER
L304	645 002 4511	CORE,PIPE
L305	645 002 4511	CORE,PIPE
L441	610 032 1243	INDUCTOR 150UHK
	610 032 1250	INDUCTOR 150UHK
L442	610 210 9689	COIL
	610 230 7078	COIL
L702	610 029 6367	PEAKING COIL 5.6UH K
L703	610 029 6367	PEAKING COIL 5.6UH K
L704	610 029 6121	PEAKING COIL 22UH K
L705	610 029 6725	PEAKING COIL 1.5UH M
L706	610 029 5926	PEAKING COIL 10UH K

Ref. No.	Part No.	Description
L872	401 012 5708	CARBON 1K JA 1/4W
DIODE		
D123	407 075 9905	ZENER DIODE EQA03-11AV3
	407 075 9905	ZENER DIODE EQA03-11A
D171	408 007 8607	DIODE 1N4148
	407 013 1206	DIODE 1S1555
D201	407 127 3400	ZD BZX55C12-GPS-26
	407 048 6900	ZENER DIODE EQA02-12A
	407 048 7105	ZENER DIODE EQA02-12B
D202	407 127 3400	ZD BZX55C12-GPS-26
	407 048 6900	ZENER DIODE EQA02-12A
	407 048 7105	ZENER DIODE EQA02-12B
D203	407 127 3400	ZD BZX55C12-GPS-26
	407 048 6900	ZENER DIODE EQA02-12A
	407 048 7105	ZENER DIODE EQA02-12B
D231	408 007 8607	DIODE 1N4148
	407 013 1008	DIODE 1S1553
D232	408 007 8607	DIODE 1N4148
	407 013 1206	DIODE 1S1555
D233	408 007 8607	DIODE 1N4148
	407 013 1008	DIODE 1S1553
D234	408 007 8607	DIODE 1N4148
	407 013 1206	DIODE 1S1555
D275	407 048 1202	ZENER DIODE EQA02-05E
D303	407 006 6300	DIODE ERC05-10B
	407 009 6901	DIODE RM11C
	407 064 6908	DIODE TVR4N(X)
D304	407 006 6300	DIODE ERC05-10B
	407 009 6901	DIODE RM11C
	407 064 6908	DIODE TVR4N(X)
D305	407 006 6300	DIODE ERC05-10B
	407 009 6901	DIODE RM11C
	407 064 6908	DIODE TVR4N(X)
D306	407 006 6300	DIODE ERC05-10B
	407 009 6901	DIODE RM11C
	407 064 6908	DIODE TVR4N(X)
D314	408 007 8607	DIODE 1N4148
	407 013 1008	DIODE 1S1553
⚠D315	407 105 8700	PHOTO COUPLE PC113B
	408 009 8407	PHOTO COUPLE CNY17F-3OPT6
D316	408 007 8607	DIODE 1N4148
	407 013 1008	DIODE 1S1553
D317	407 007 6606	DIODE ES1
	407 007 6903	DIODE ES1Z
	408 009 9008	DIODE BYD33D
D351	407 007 7702	DIODE EU2A
	408 009 9206	DIODE BYD33J
	407 064 7004	DIODE 1S1835
D353	407 007 6606	DIODE ES1
	408 009 9305	DIODE BYD33G
	407 013 1909	DIODE 1S1834
D354	407 007 7801	DIODE EU2Z
D355	407 007 6606	DIODE ES1
D361	407 048 2407	ZENER DIODE EQA02-06E
	407 048 2605	ZENER DIODE EQA02-06F
D362	408 007 8607	DIODE 1N4148
	407 013 1206	DIODE 1S1555
D364	408 007 8607	DIODE 1N4148
	407 013 1206	DIODE 1S1555
D365	408 007 8607	DIODE 1N4148
	407 013 1206	DIODE 1S1555
D366	408 007 8607	DIODE 1N4148
	407 013 1206	DIODE 1S1555
D383	407 048 1202	ZENER DIODE EQA02-05E
D393	408 007 8607	DIODE 1N4148
	407 013 1206	DIODE 1S1555
D401	407 075 9905	ZENER DIODE EQA03-11AV3
	407 075 9905	ZENER DIODE EQA03-11A
D431	407 048 4906	ZENER DIODE EQA02-09A
	407 048 5101	ZENER DIODE EQA02-09B
D441	407 011 4407	DIODE TVR1G
D451	407 005 7308	DIODE EM01Z
	408 009 9008	DIODE BYD33D
D452	408 007 8607	DIODE 1N4148
	407 013 1206	DIODE 1S1555
D471	407 118 2207	ZENER DIODE 1Z75
D703	407 055 7907	ZENER DIODE RD3.6EL
D704	409 013 0104	IC HZT33
	409 026 8005	IC L5630
	409 057 5103	IC UPC574J
D712	408 007 8607	DIODE 1N4148
	407 013 1206	DIODE 1S1555
D720	407 013 1206	DIODE 1S1555
D803	407 116 6504	LED SLP-181B-51
D806	407 127 3400	ZD BZX55C12-GPS-26
	407 048 6900	ZENER DIODE EQA02-12A
	407 048 7105	ZENER DIODE EQA02-12B
D851	407 127 3400	ZD BZX55C12-GPS-26
	407 048 6900	ZENER DIODE EQA02-12A
	407 048 7105	ZENER DIODE EQA02-12B
D855	407 127 3400	ZD BZX55C12-GPS-26
	407 048 6900	ZENER DIODE EQA02-12A
	407 048 7105	ZENER DIODE EQA02-12B
D856	407 127 3400	ZD BZX55C12-GPS-26
	407 048 6900	ZENER DIODE EQA02-12A
	407 048 7105	ZENER DIODE EQA02-12B
D873	407 127 3400	ZD BZX55C12-GPS-26
	407 048 6900	ZENER DIODE EQA02-12A
	407 048 7105	ZENER DIODE EQA02-12B
D875	407 127 3400	ZD BZX55C12-GPS-26
	407 048 6900	ZENER DIODE EQA02-12A
	407 048 7105	ZENER DIODE EQA02-12B
MISCELLANEUS		
⚠F301	423 022 2102	FUSE 250V 4A
A101	610 229 0110	UV VARACTOR TUNER
A701	610 224 5806	RC PREAMP 409-1L
K801	610 009 8275	SOCKET 21P
	610 218 6673	SOCKET 21P
	610 225 2361	SOCKET 21P
K801A	610 081 9887	SOCKET MTG BRKT-D8PC
K801B1	412 009 8107	SCR TAP2 FLG 3X10E
K801B2	412 009 8107	SCR TAP2 FLG 3X10E
PS301	408 003 6805	THERMISTOR 902P44E180MR14
	408 000 3906	TH PTH451A112BF180M270
SW220	610 011 2728	LEVER SWITCH
⚠SW301	645 003 6811	SWITCH,PUSH POWER 2P-2T
SW701	610 011 2698	PUSH SWITCH
SW702	610 011 2698	PUSH SWITCH
SW703	610 011 2698	PUSH SWITCH
SW704	610 011 2698	PUSH SWITCH
SW705	610 011 2698	PUSH SWITCH
SW706	610 011 2698	PUSH SWITCH
X101	421 004 8401	SAW F TSF5345
X124	610 015 2854	CERAMIC FILTER
	610 015 3547	CERAMIC TRAP
X151	645 003 2806	CERAMIC FILTER
X400	645 000 2502	OSC,CRYSTAL 4.433619MHZ
	610 239 3347	CRYSTAL OSCILLATOR
X701	645 000 6692	OSC,CERAMIC 8.00MHZ
	645 002 1039	OSC,CERAMIC 8.00MHZ

610 248 8036 CRT SUB PCB ASSY-E7CD UE2783A2

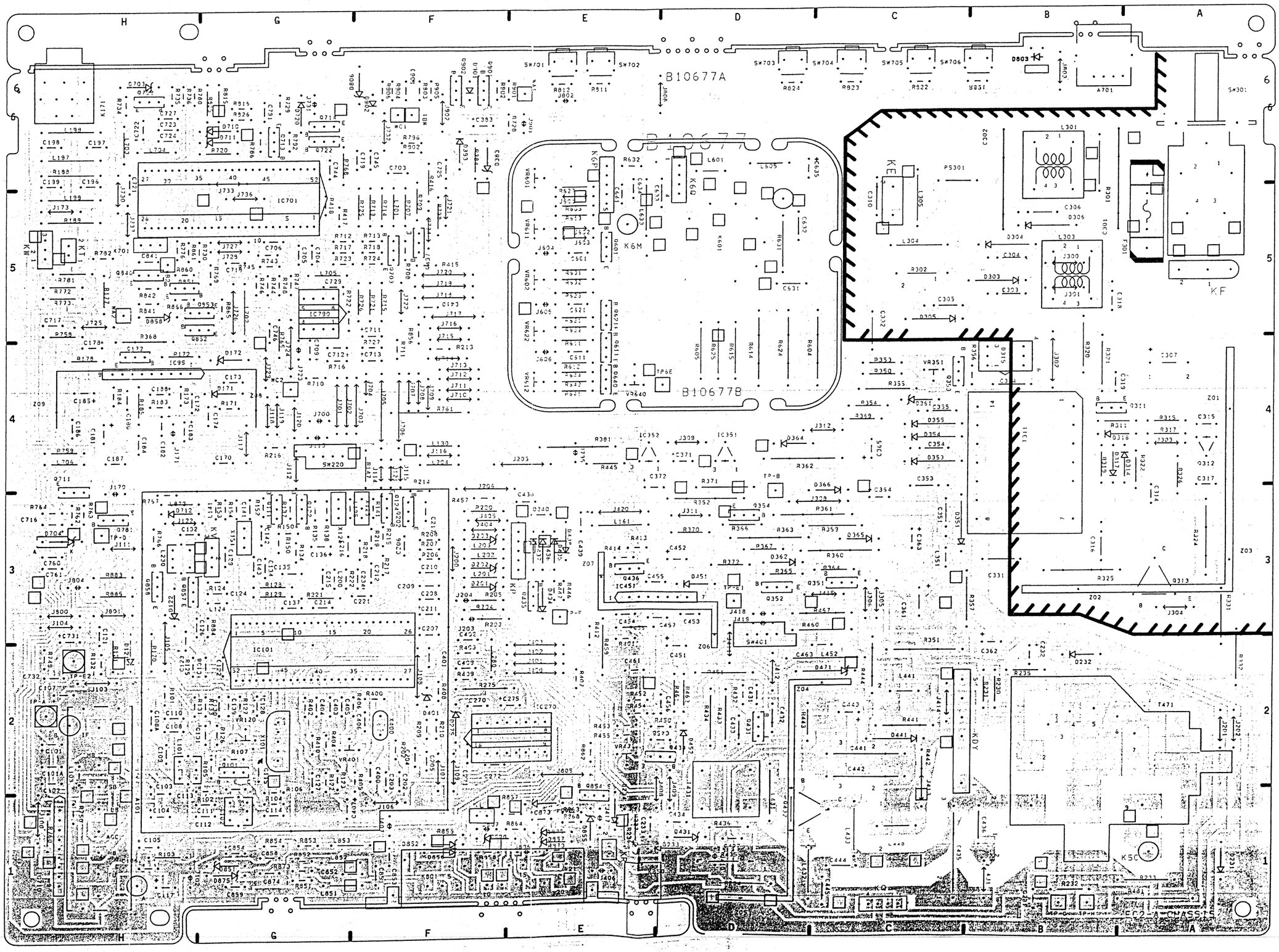
TRANSISTOR

Q601	406 006 1902	TR BF422
	405 040 5600	TR 2SC2228-D
	405 029 6901	TR 2SC2228-E
Q611	406 006 1902	TR BF422
	405 040 5600	TR 2SC2228-D
	405 029 6901	TR 2SC2228-E
Q621	406 006 1902	TR BF422
	405 040 5600	TR 2SC2228-D
	405 029 6901	TR 2SC2228-E

Ref. No.	Part No.	Description
Q640	406 007 1901	TR JC556A
	406 007 1802	TR JC556B
	405 004 4205	TR 2SA608-E-CTV-NP
	405 004 4309	TR 2SA608-F-CTV-NP
	405 028 7909	TR 2SA608-G-CTV-NP
CAPACITOR		
C601	403 073 2900	CERAMIC 390P K 50V
C611	403 073 2900	CERAMIC 390P K 50V
C621	403 073 2900	CERAMIC 390P K 50V
C631	403 077 2708	CERAMIC 1000P P 2K
C634	403 060 8205	POLYESTER 0.033U K 50V
	403 060 8403	POLYESTER 0.033U K 50V
	403 179 1609	POLYESTER 0.033U K 50V
C635	403 259 8900	ELECT 1U M 160V
RESISTOR		
R601	401 019 1000	CARBON 390 JA 1/4W
R602	401 026 4308	CARBON 3.3K JA 1/6W
R603	401 021 1906	CARBON 560 JA 1/4W
R604	401 065 4505	OXIDE-MT 12K JA 2W
	401 065 4604	OXIDE-MT 12K JA 2W
R605	401 002 0102	SOLID 3.3K KA 1/2W
R611	401 019 1000	CARBON 390 JA 1/4W
R612	401 026 4308	CARBON 3.3K JA 1/6W
R613	401 013 5301	CARBON 1.2K JA 1/4W
R614	401 065 4505	OXIDE-MT 12K JA 2W
	401 065 4604	OXIDE-MT 12K JA 2W
R615	401 002 0102	SOLID 3.3K KA 1/2W
R621	401 019 1000	CARBON 390 JA 1/4W
R622	401 026 4308	CARBON 3.3K JA 1/6W
R623	401 015 2704	CARBON 1.8K JA 1/4W
R624	401 065 4505	OXIDE-MT 12K JA 2W
	401 065 4604	OXIDE-MT 12K JA 2W
R625	401 002 0102	SOLID 3.3K KA 1/2W
R627	401 021 1906	CARBON 560 JA 1/4W
R631	401 001 7607	SOLID 270K KA 1/2W
R641	401 020 2003	CARBON 4.7K JA 1/4W
R642	401 018 3807	CARBON 3.3K JA 1/4W
R644	401 018 2800	CARBON 330 JA 1/4W
VARIABLE RESISTOR		
VR601	645 002 1916	VR,SEMI,1K S
VR602	645 003 4121	VR,SEMI,4.7K S
VR611	645 002 1916	VR,SEMI,1K S
VR612	645 003 4121	VR,SEMI,4.7K S
VR622	645 003 4121	VR,SEMI,4.7K S
MISCELLANEOUS		
K6S	610 012 5018	HOLDER 1P
⚠K601	610 249 3108	CRT SOCKET
OUT OF CIRCUIT BOARD		
PICTURE TUBE		
⚠Q901	414 007 8905	CRT A34EAC01X06
COIL		
⚠L901	645 004 2669	COIL,DEGAUSSING
	610 225 3542	DEGAUSSING COIL
	610 225 3566	DEGAUSSING COIL
MISCELLANEUS		
KDY	610 013 9596	MINI CONNECTOR 5P-SOCKET
SP901	610 055 6614	SPEAKER
	610 215 6089	SPEAKER
⚠W901	610 233 9567	AC CORD
W902	610 024 2081	GROUNDING CONNECTOR
	610 024 2159	GROUNDING CONNECTOR

Ref. No.	Part No.	Description
005	005E7CC	CABINET PARTS
	610 248 9101	ASSY,CABINET FR-E7CC
03	610 078 2822	DOPE CEMENT
03	610 248 5776	CABINET FRONT-E7CC
03	610 100 8778	CABINET MTG BOSS-GSZ
	610 248 5783	CABINET BACK-E7CC
	610 248 5790	DEC SHEET-E7CC
	610 210 7302	COIL SPRING-D8HA
	610 098 2659	FOOT-BZYA
	610 100 5616	CLIP-BLFA
	610 102 7151	DC HOLDER HBZ
	610 102 7823	AC CORD HOLDER-D4VA
	610 225 6383	WIRE BAND-L280
006	006E7CC	CHASSIS PARTS
	610 235 1347	WIRE HOLDER-E5BE
	610 226 3985	WIRE BAND-L110
007	007E7CC	KNOBS
	610 248 5745	BUTTON UNIT A-E7CC
	610 248 5752	BUTTON UNIT B-E7CC
	610 248 5769	BUTTON POWER-E7CC
009	009E7CE	ACCESSORIES
	610 011 5736	ANT MACHING BOX
	610 211 9299	ANT MATCHING BOX
	610 217 1006	ROD ANTENNA ASSY
	JXRA	RC TRANSMITTER
AA1901	645 002 0636	ASSY,REMOCON JXRA
A9901	610 247 0093	RC PCB UNIT-JXRA
A9901A	610 247 0154	RC CASE TOP-JXRA
A9901B	610 247 0161	RC CASE BOTTOM-JXRA
A9901C	610 247 0178	RC BATTERY LID-JXRA
A9901D	610 247 0123	DEC RC SHEET-JXRA
A9901E	610 247 0116	BUTTON RC-JXRA
A9901F	610 247 0185	SPRING-JXRA
A9901G	610 119 3726	IND POLYE COVER-ZXG
A9901H01	411 107 9801	SCR TPG BIN 2X6
A9901H02	411 107 9801	SCR TPG BIN 2X6
	610 249 0503	INSTRUCTIONS MANUAL-E7CE
	610 249 0527	SCHEMATIC DIAGRAM-E7CE
	610 114 3189	USAGE AND SAFETY TIP-D5PS
	610 117 8457	ENVELOPE B3HY
020	020E7CE	LABELS
	610 248 9170	LABEL RATING-E7CE
	610 106 4057	SERIAL NO LABEL-B3HY
	610 237 9129	BAR CODE LABEL-E5PK

MAIN BOARD CIRCUIT SIDE
PANNELLO PRINCIPAL LATO DEL CIRCUITO



SERVICE CONTROL ADJUSTMENT

B1 POWER SUPPLY ADJUSTMENT
1. Set VR351 to be mechanical center before pressing the main switch.
2. Tune the receiver to PAL circular pattern.
3. Set brightness and contrast controls to normal.
4. Connect digital V-meter to R351.
5. By using VR351, adjust voltage to 130 ± 0.5 V.

TU-AFT ADJUSTMENT
1. Tune the receiver to the clearest station.
2. By using L230, adjust AFT to obtain the best picture.

AGC ADJUSTMENT
NOTE: ***Do not attempt this adjustment with weak signal.***
1. Tune the receiver to the clearest station.
2. Set AGC VR(VR120) in direction which causes snow noise to appear, then in the opposite direction until snow noise just disappears.

GREY SCALE ADJUSTMENT

[SCREEN VR ADJUSTMENT]
1. Tune the receiver to black and white pattern.
2. Set brightness control to display centre and contrast control to normal.
3. Set SW220 to "SERVICE" position.
4. Set VR601and VR611 to be mechanical center.
5. Turn VR602, VR612 and VR622 fully counter-clockwise.
6. Set screen VR for one colour to be just visible.

[BIAS VR ADJUSTMENT]
7. By using VR602, VR612 or VR622, adjust line to be white.
8. Set SW220 to "NORMAL" position.

[DRIVE VR ADJUSTMENT]
9. By using VR601 and VR611, adjust white balance.

HIGH VOLTAGE & WIDTH CONFIRM

[HIGH VOLTAGE CONFIRM]
1. Tune the receiver to PAL circular pattern.
2. Set brightness and contrast controls to normal.
3. Connect digital V-meter to test point (+) "TP-H" and (-) "TP-G", and high voltage meter to CRT anode.
4. Confirm high voltage to be 21.0 ± 1 KV at beam current 0.7 ± 0.05, and less than 25.0 KV at 0 beam current.

[H-WIDTH CONFIRM]
5. If H-width is too wide or narrow, connect or disconnect AJ1.
6. Reconfirm high voltage.

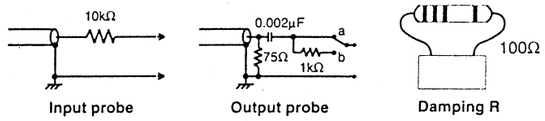
H-CENTER ADJUSTMENT
1. Tune the receiver to PAL circular pattern.
2. Adjust H-center by using VR401.

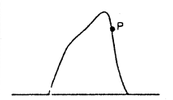
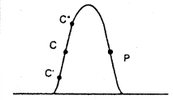
V-SIZE ADJUSTMENT
1. Tune the receiver to PAL circular pattern.
2. Adjust V-size by using VR431.

FOCUS ADJUSTMENT
By using FOCUS VR, adjust focus control for well scanning lines.

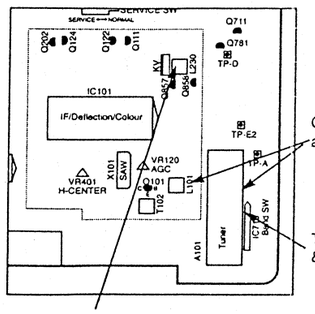
CIRCUIT ALIGNMENT

VIF ALIGNMENT



		DETECTOR ADJUSTMENT	OVERALL WAVEFORM
SETTING	DC 15V	IC351-1	IC351-1
	AGC voltage	IC101-48 p	IC101-48 p
	Output probe	Tuner TP (Side b)	Tuner TP (Side b)
	Input probe	TP-F	TP-F
	Tuning voltage	Tuner TU	Tuner TU
	Band	FREE	FREE
	Damping R	----------	KV-1 & KV-2
	System SW	B/G	B/G
	Sweep ATT	30	30
Adjustment		By using L230, adjust "P" to be maximum amplitude.	By using Tuner converter coil and L101, make the marker positions to P=35 ± 10% C=35 ± 10%
VIF waveform			

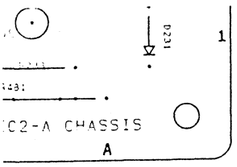
MAIN BOARD



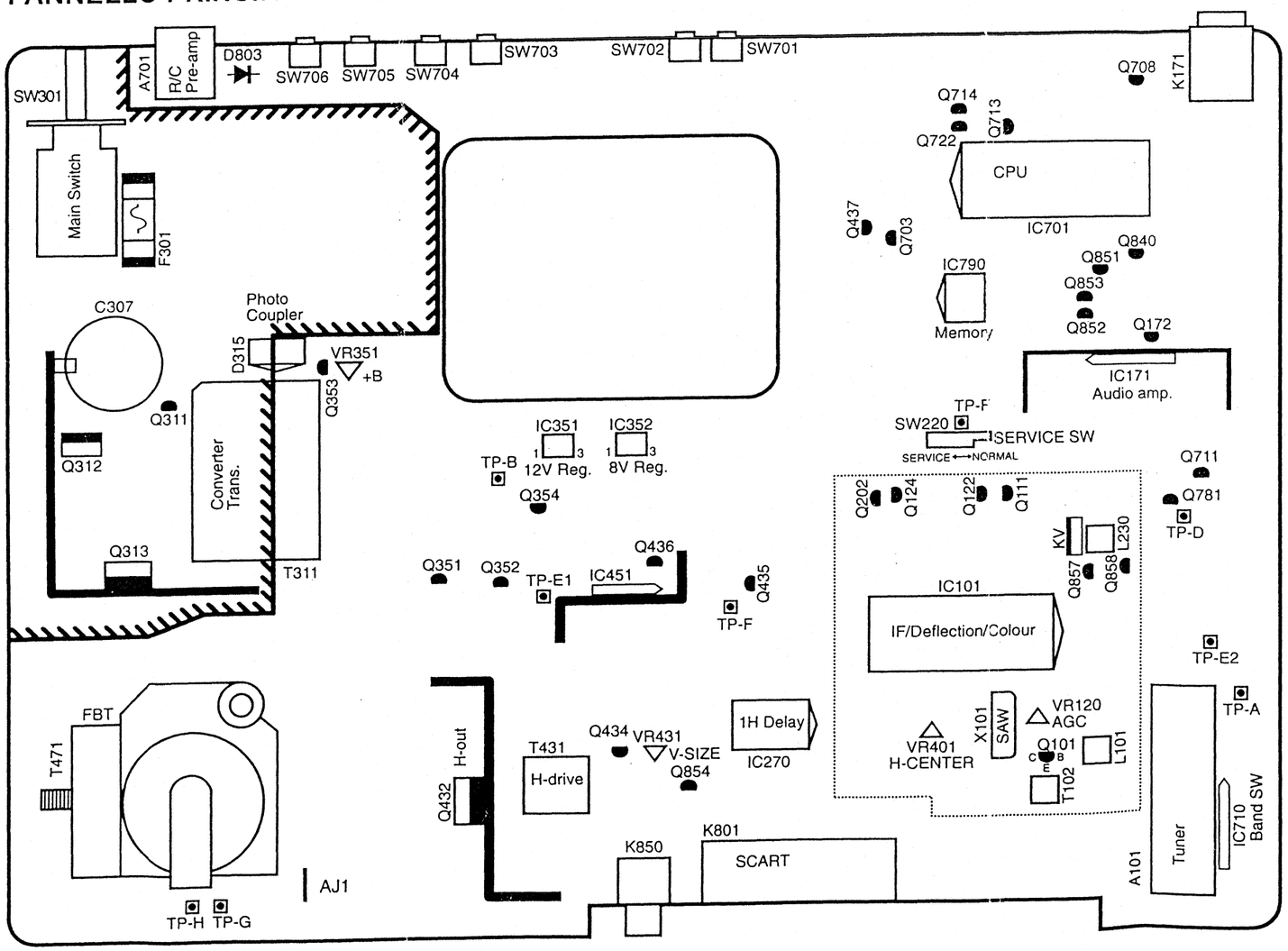
Overall waveform adjustment

Tuner converter coil & Tuner TR

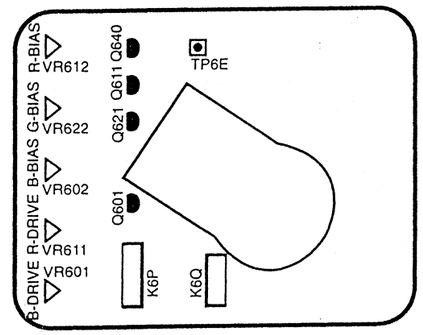
Detector adjustment



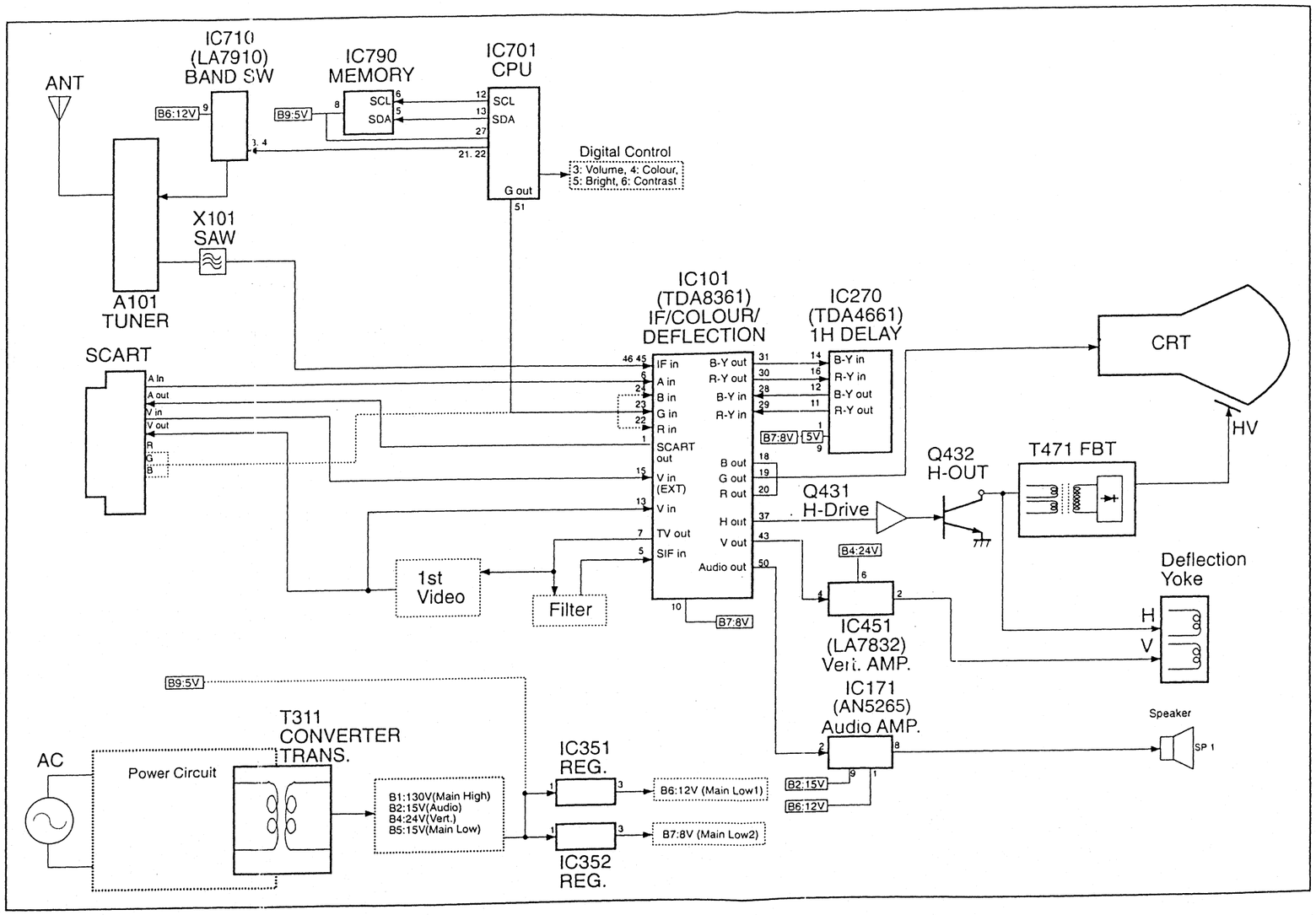
COMPONENT LOCATION MAIN BOARD
PANNELLO PRINCIPAL LATO DEL COMPONENTE



COMPONENT LOCATION CRT BOARD
PANNELLO CINESCOPIO LATO DEL COMPONENTE



BLOCK DIAGRAM



Part No. 1AA6P2P0156-- E7CD/CDL

IC351	
	VOLT.
1	15.2V
2	-
3	12.0V

IC352	
	VOLT.
1	11.2V
2	-
3	8.1V

IC101

3.0V	1	52	6.6V
5.9V	2	51	4.7V
5.9V	3	50	3.5V
5.1V	4	49	1.4V
5.1V	5	48	4.4V
3.9V	6	47	3.3V
3.2V	7	46	4.0V
1.7V	8	45	4.0V
-	9	44	4.0V
8.0V	10	43	0.8V
-	11	42	2.5V
3.2V	12	41	2.6V
4.2V	13	40	3.8V
0.6V	14	39	3.0V
3.4V	15	38	0.9V
0.1V	16	37	0.7V
3.1V	17	36	8.0V
2.5V	18	35	2.1V
2.5V	19	34	2.8V
2.5V	20	33	4.4V
0.2V	21	32	0.1V
3.4V	22	31	1.5V
3.4V	23	30	1.4V
3.4V	24	29	3.9V
2.7V	25	28	3.9V
1.7V	26	27	2.5V

IC701

0.5V	1	52	0V
0V	2	51	0V
2.4V	3	50	-
1.4V	4	49	-
2.3V	5	48	5.2V
3.5V	6	47	5.2V
-	7	46	-
-	8	45	0V
5.6V	9	44	-
0V	10	43	-
0V	11	42	-
5.3V	12	41	-
5.3V	13	40	-
2.8V	14	39	-
5.1V	15	38	-
5.3V	16	37	-
5.3V	17	36	-
0.1V	18	35	0.4V
0V	19	34	0.4V
5.3V	20	33	2.7V
5.2V	21	32	0V
0V	22	31	5.0V
0V	23	30	0V
2.6V	24	29	5.3V
0.1V	25	28	5.2V
0V	26	27	5.3V

IC270

5.1V	1	16	1.5V
-	2	15	-
-	3	14	1.1V
-	4	13	-
0.9V	5	12	3.1V
-	6	11	3.1V
-	7	10	-
-	8	9	5.1V

IC171

11.7V	1		
5.2V	2		
0.1V	3		
4.5V	4		
6.4V	5		
6.4V	6		
-	7		
6.7V	8		
14.0V	9		

IC451

46Vpp VERT.	-	1	
	13.1V	2	
0.8Vpp VERT.	24.2V	3	
	0.8V	4	
	0.9V	5	
25Vpp VERT.	23.8V	6	
	1.0V	7	

IC790

-	1	8	5.3V
-	2	7	-
-	3	6	5.3V
-	4	5	5.3V

IC710

0.1V	1		
11.8V	2		
3.5V	3		
0V	4		
-	5		
13.4V	6		
0.5V	7		
0V	8		
11.9V	9		

Q601		
	VOLT.	WAVEFORM
B	2.1V	2.8Vp-p HORIZ.
C	102V	70Vp-p HORIZ.
E	1.6V	

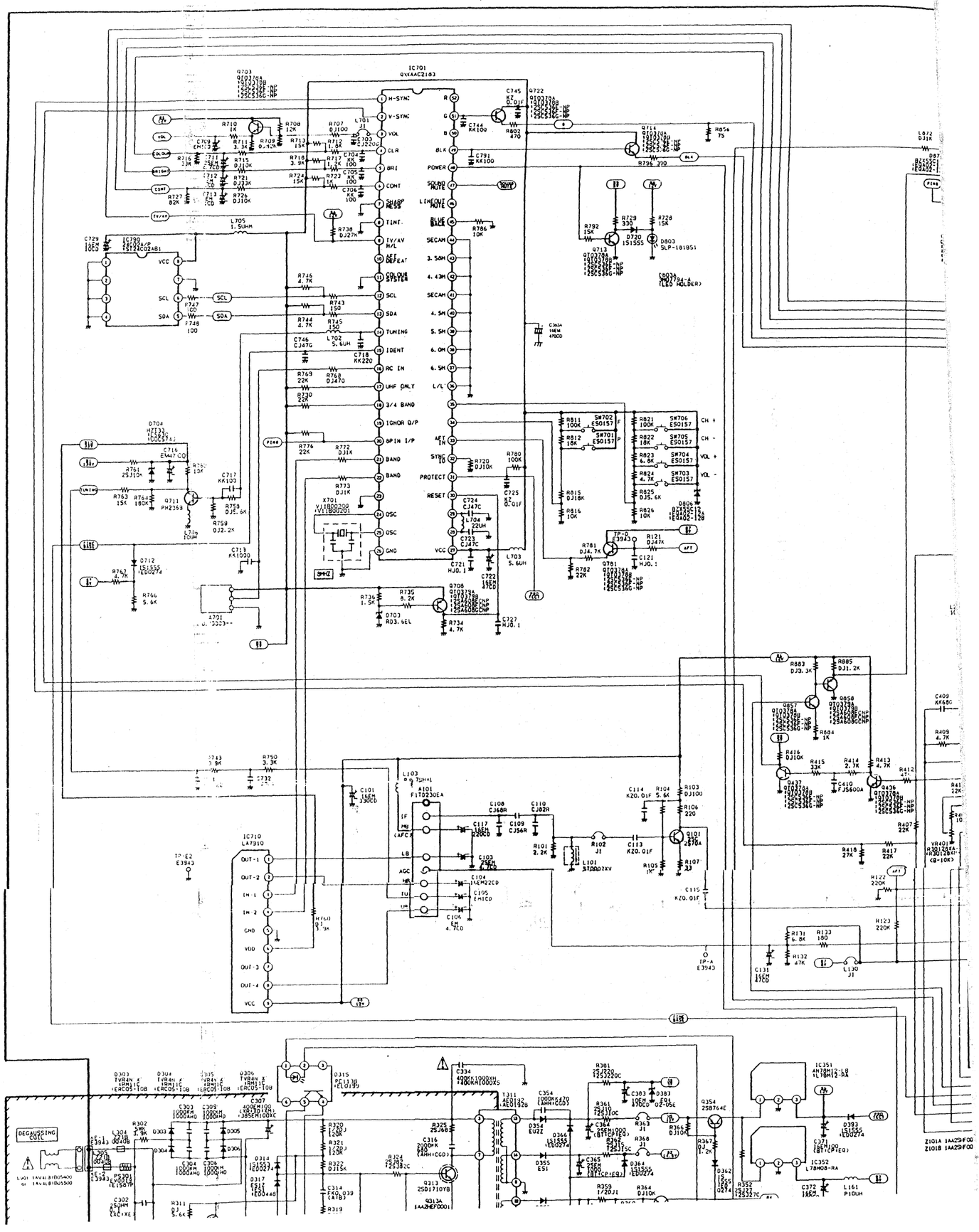
Q611		
	VOLT.	WAVEFORM
B	2.3V	3.4Vp-p HORIZ.
C	102V	77Vp-p HORIZ.
E	1.8V	

Q621		
	VOLT.	WAVEFORM
B	2.2V	3.2Vp-p HORIZ.
C	100V	77Vp-p HORIZ.
E	1.7V	

Q312		
	VOLT.	WAVEFORM
B	-2.7V	6.6Vp-p
C	-1.5V	5.0Vp-p
E	-	

Q313		
	VOLT.	WAVEFORM
B	-1.5V	5.0Vp-p
C	-	660Vp-p
E	-	

Q431		
	VOLT.	WAVEFORM
B	0.3V	1.0Vp-p HORIZ.
C	14.9V	60Vp-p HORIZ.
E	-	



DIFERENCE POINT		
	C14EA80D-00	C14EA80D-01
Q901	37GDA85X (SAMSUNG)	BXXAAQ0355XPH BXXAAQ0368XPH (PHILIPS)
L902	DY0150XFB	——
L441	——	L4090 :L4090XA (150UH)
R441	J1	——
L442	——	AA0036 :AA0036A (550UH)
R442	——	25J5 6K
J413	J1	——
C441	200NJ0.27Q	200NJ0.18Q
C435	1500MJ5100 (XD:XE)	1500MJ5400 (XD:XE)

* NOTE 1: MAIN SUB PCB ASSY
E7CD-----UE2783A1
E7CDL---UE2783F1

CRT SUB PCB ASSY-E7CD UE2783A2
PB601 4AA4B10677B--

Z101A 1AA2SF0013--
Z101B 1AA2SF0014--

C	102V	70Vp-p HORIZ.
E	1.6V	

C	102V	77Vp-p HORIZ.
E	1.8V	

C	100V	77Vp-p HORIZ.
E	1.7V	

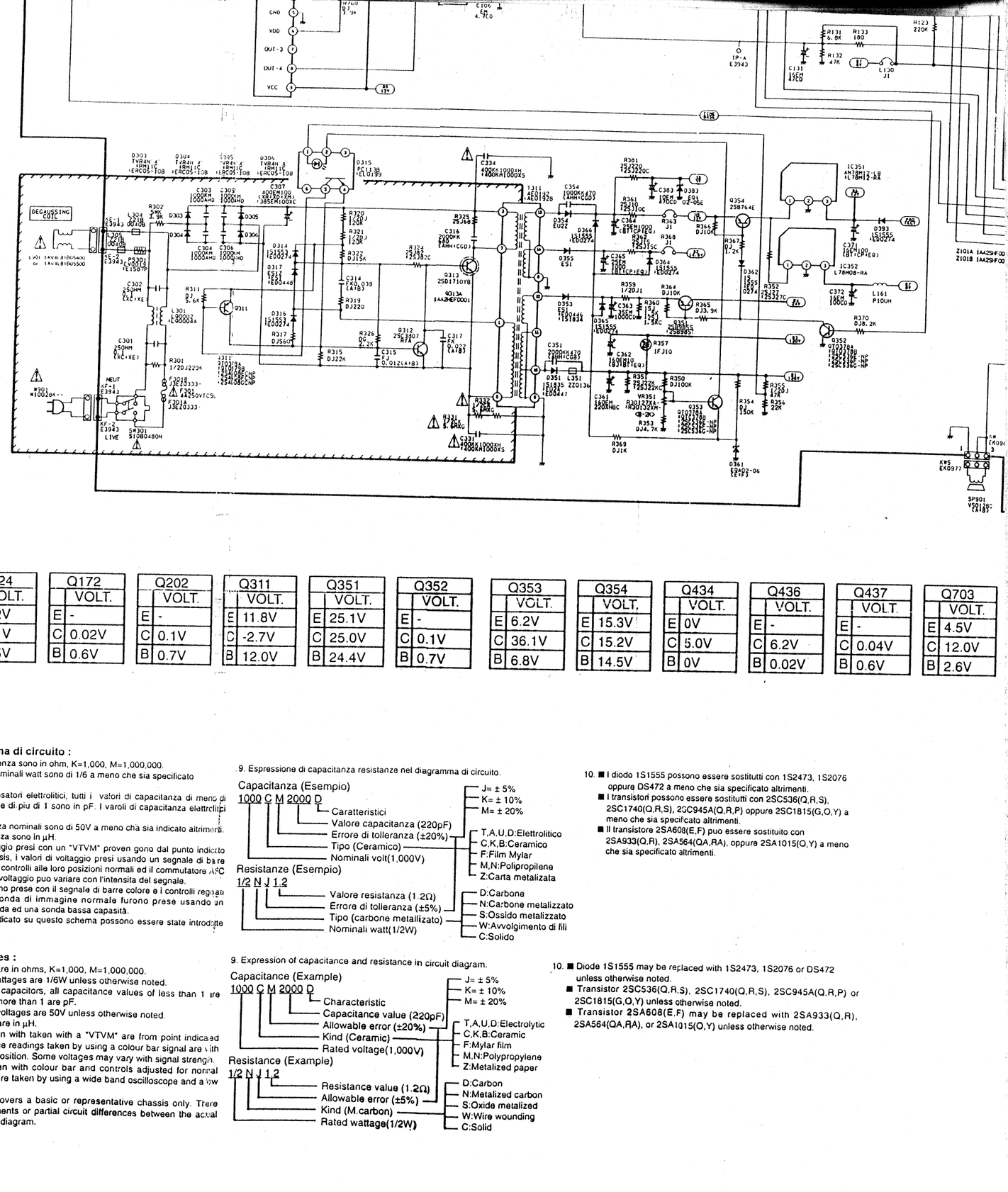
Q312		
	VOLT.	WAVEFORM
B	-2.7V	6.6Vp-p
C	-1.5V	5.0Vp-p
E	-	

Q313		
	VOLT.	WAVEFORM
B	-1.5V	5.0Vp-p
C	-	660Vp-p
E	-	

Q431		
	VOLT.	WAVEFORM
B	0.3V	1.0Vp-p HORIZ.
C	14.9V	60Vp-p HORIZ.
E	-	

Q432		
	VOLT.	WAVEFORM
B	2.3V	12Vp-p HORIZ.
C	-	1100Vp-p HORIZ.
E	-	

TP-F	WAVEFORM
	2Vp-p HORIZ.



Q101	
	VOLT.
E	0.6V
C	6.3V
B	1.4V

Q111	
	VOLT.
E	2.5V
C	8.0V
B	3.1V

Q122	
	VOLT.
E	2.5V
C	8.0V
B	3.1V

Q124	
	VOLT.
E	3.2V
C	8.1V
B	2.5V

Q172	
	VOLT.
E	-
C	0.02V
B	0.6V

Q202	
	VOLT.
E	-
C	0.1V
B	0.7V

Q311	
	VOLT.
E	11.8V
C	-2.7V
B	12.0V

Q351	
	VOLT.
E	25.1V
C	25.0V
B	24.4V

Q352	
	VOLT.
E	-
C	0.1V
B	0.7V

Q353	
	VOLT.
E	6.2V
C	36.1V
B	6.8V

Q354	
	VOLT.
E	15.3V
C	15.2V
B	14.5V

Q434	
	VOLT.
E	0V
C	5.0V
B	0V

Q436	
	VOLT.
E	-
C	6.2V
B	0.02V

Q437	
	VOLT.
E	-
C	0.04V
B	0.6V

Q703	
	VOLT.
E	4.5V
C	12.0V
B	2.6V

Product safety notice:
Product safety should be considered when a component replacement is made in any area of a receiver. Components indicated by a mark ⚠ in this circuit diagram show components whose values have special significance to product safety. It is particularly recommended that only parts specified on the part service manual be used for components replacement pointed out by the mark.

NOTIZIE SULLA SICUREZZA DI FUNZIONAMENTO
Ogni sotituzione di componenti va fatta tenendo conto della sicurezza di funzionamento. I componenti indicati sollo schema con il simbolo ⚠ hanno particolare importanza per il sicuro funzionamento del TV.
I suddetti componenti devono essere sostituti esclusivamente con quelli indicati nell'elenco.

The service Precaution:
The area enclosed by this line (⏦⏦⏦) is directly connected with AC mains voltage. When servicing the area, connect an isolating transformer between TV receiver and AC line to eliminate hazard of electric shock.

PRECAUZIONE DI SERVIZIO
L'area inclusa in questa linea (⏦⏦⏦) è collegata direttamente con la tensione della rete CA quando si serve l'area collegare un trasformatore isolante tra il ricevitore TV e la linea CA per eliminare il pericolo di scossa elettrica.

SANYO

COLOUR TELEVISION
TELEVISORE A COLORI
EC2-A CHASSIS SERIES

SERVICE **C14EA80D - 00**
REF.NO. **C14EA80D - 01**

Part No. 1AA6P2P0156-- E7CD/CDL

Note sul diagramma di circuito :
1. Tutte i valori di resistenza sono in ohm, K=1,000, M=1,000,000.
2. Tutte le resistenze nominali watt sono di 1/6 a meno che sia specificato altrimenti.
3. Eccetto per i condensatori elettrolitici, tutti i valori di capacitanza di meno di sono espressi in µF, e di piu di 1 sono in pF. I varoli di capacitanza elettrolitici sono in µF.
4. Tutti volt di capacitanza nominali sono di 50V a meno chà sia indicato altrimenti.
5. Tutti valori di inductanza sono in µH.
6. I valori letti del voltaggio presi con un "VTVM" proven gono dal punto indicato sulla massa del chassis, i valori di voltaggio presi usando un segnale di barre colore sono con tutti i controlli alle loro posizioni normali ed il commutatore AFC in posizione "OFF". Il voltaggio puo variare con l'intensita del segnale.
7. Le forme di onda furono prese con il segnale di barre colore e i controlli regolati oppure le forme di onda di immagine normale furono prese usando un oscillatore a larga banda ed una sonda bassa capasità.
8. Rispetto a quando indicato su questo schema possono essere state introdotte delle modifiche.

Circuit diagram notes :
1. All resistance values are in ohms, K=1,000, M=1,000,000.
2. All resistance rated wattages are 1/6W unless otherwise noted.
3. Excepting electrolytic capacitors, all capacitance values of less than 1 are expressed in µF and more than 1 are pF.
4. All capacitance rated voltages are 50V unless otherwise noted.
5. All inductance values are in µH.
6. Voltage readings taken with taken with a "VTVM" are from point indicated chassis ground. Voltage readings taken by using a colour bar signal are with all controls at normal position. Some voltages may vary with signal strength.
7. Waveforms were taken with colour bar and controls adjusted for normal picture. Waveforms were taken by using a wide band oscilloscope and a low capacity probe.
8. This circuit diagram covers a basic or representative chassis only. There may be some components or partial circuit differences between the actual chassis and the circuit diagram.

9. Espressione di capacitanza resistanze nel diagramma di circuito.

Capacitanza (Esempio)
1000 C M 2000 D
- Caratteristici
- Valore capacitanza (220pF)
- Errore di tolleranza (±20%)
- Tipo (Ceramico)
- Nominali volt(1,000V)

Errore di tolleranza: J= ± 5%, K= ± 10%, M= ± 20%
Tipo: T,A,U,D:Elettrolitico, C,K,B:Ceramico, F:Film Mylar, M,N:Polipropilene, Z:Carta metalizzata

Resistanze (Esempio)
1/2 N J 1,2
- Valore resistanza (1.2Ω)
- Errore di tolleranza (±5%)
- Tipo (carbone metallizato)
- Nominali watt(1/2W)

Errore di tolleranza: J= ± 5%, K= ± 10%, M= ± 20%
Tipo: D:Carbone, N:Carbone metalizzato, S:Ossido metalizzato, W:Avvolgimento di fili, C:Solido

10. ■ I diodo 1S1555 possono essere sostitutti con 1S2473, 1S2076 oppure DS472 a meno che sia specificato altrimenti.
■ I transistori possono essere sostitutti con 2SC536(Q,R,S), 2SC1740(Q,R,S), 2SC945A(Q,R,P) oppure 2SC1815(G,O,Y) a meno che sia specifcato altrimenti.
■ Il transistore 2SA608(E,F) puo essere sostituito con 2SA933(Q,R), 2SA564(QA,RA), oppure 2SA1015(O,Y) a meno che sia specificato altrimenti.

9. Expression of capacitance and resistance in circuit diagram.

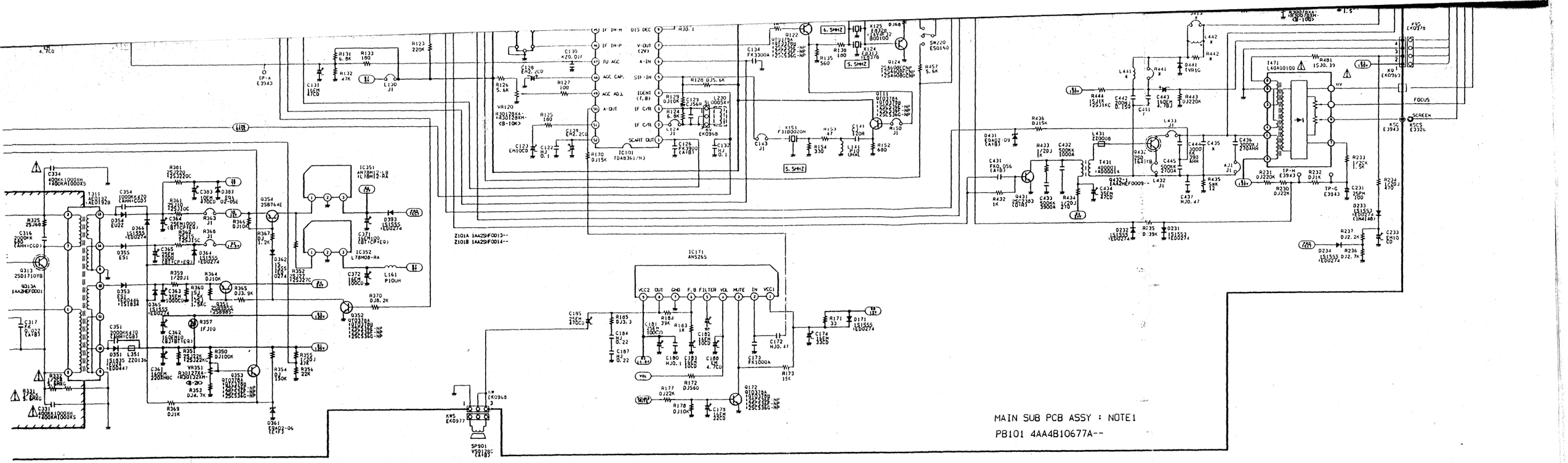
Capacitance (Example)
1000 C M 2000 D
- Characteristic
- Capacitance value (220pF)
- Allowable error (±20%)
- Kind (Ceramic)
- Rated voltage(1,000V)

Allowable error: J= ± 5%, K= ± 10%, M= ± 20%
Kind: T,A,U,D:Electrolytic, C,K,B:Ceramic, F:Mylar film, M,N:Polypropylene, Z:Metalized paper

Resistance (Example)
1/2 N J 1,2
- Resistance value (1.2Ω)
- Allowable error (±5%)
- Kind (M.carbon)
- Rated wattage(1/2W)

Kind: D:Carbon, N:Metalized carbon, S:Oxide metalized, W:Wire wounding, C:Solid

10. ■ Diode 1S1555 may be replaced with 1S2473, 1S2076 or DS472 unless otherwise noted.
■ Transistor 2SC536(Q,R,S), 2SC1740(Q,R,S), 2SC945A(Q,R,P) or 2SC1815(G,O,Y) unless otherwise noted.
■ Transistor 2SA608(E,F) may be replaced with 2SA933(Q,R), 2SA564(QA,RA), or 2SA1015(O,Y) unless otherwise noted.



Q352	
	VOLT.
	1V
	7V

Q353	
	VOLT.
E	6.2V
C	36.1V
B	6.8V

Q354	
	VOLT.
E	15.3V
C	15.2V
B	14.5V

Q434	
	VOLT.
E	0V
C	5.0V
B	0V

Q436	
	VOLT.
E	-
C	6.2V
B	0.02V

Q437	
	VOLT.
E	-
C	0.04V
B	0.6V

Q703	
	VOLT.
E	4.5V
C	12.0V
B	2.6V

Q708	
	VOLT.
E	5.3V
C	5.3V
B	4.6V

Q711	
	VOLT.
E	0.01V
C	10.2V
B	0.4V

Q713	
	VOLT.
E	-
C	0.1V
B	0.7V

Q714	
	VOLT.
E	0.2V
C	5.3V
B	0.02V

Q722	
	VOLT.
E	0V
C	5.3V
B	0.02V

Q781	
	VOLT.
E	3.5V
C	8.0V
B	4.0V

Q840	
	VOLT.
E	-
C	5.3V
B	0V

Q854	
	VOLT.
E	3.3V
C	8.0V
B	3.9V

Q857	
	VOLT.
E	2.3V
C	4.3V
B	2.9V

Q858	
	VOLT.
E	5.0V
C	-
B	0.7V

Q640	
	VOLT.
E	1.4V
C	-
B	0.7V

gramma di circuito.

- J= ± 5%
- K= ± 10%
- M= ± 20%

20pF)
20%)
- T,A,U,D:Elettrolitico
- C,K,B:Ceramico
- F:Film Mylar
- M,N:Polipropilene
- Z:Carta metalizzata

:)
%)
ato)
- D:Carbone
- N:Carbone metalizzato
- S:Ossido metalizzato
- W:Avvolgimento di fili
- C:Solido

10. ■ I diodo 1S1555 possono essere sostitutti con 1S2473, 1S2076 oppure DS472 a meno che sia specificato altrimenti.
■ I transistori possono essere sostitutti con 2SC536(Q,R,S), 2SC1740(Q,R,S), 2SC945A(Q,R,P) oppure 2SC1815(G,O,Y) a meno che sia specificato altrimenti.
■ Il transistore 2SA608(E,F) puo essere sostituito con 2SA933(Q,R), 2SA564(QA,RA), oppure 2SA1015(O,Y) a meno che sia specificato altrimenti.

circuit diagram.

- J= ± 5%
- K= ± 10%
- M= ± 20%

pF)
- T,A,U,D:Electrolytic
- C,K,B:Ceramic
- F:Mylar film
- M,N:Polypropylene
- Z:Metalized paper

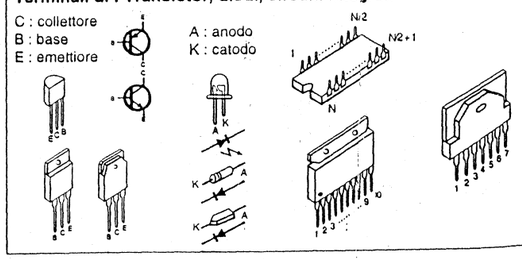
)
- D:Carbon
- N:Metalized carbon
- S:Oxide metalized
- W:Wire wounding
- C:Solid

10. ■ Diode 1S1555 may be replaced with 1S2473, 1S2076 or DS472 unless otherwise noted.
■ Transistor 2SC536(Q,R,S), 2SC1740(Q,R,S), 2SC945A(Q,R,P) or 2SC1815(G,O,Y) unless otherwise noted.
■ Transistor 2SA608(E,F) may be replaced with 2SA933(Q,R), 2SA564(QA,RA), or 2SA1015(O,Y) unless otherwise noted.

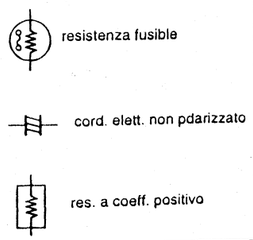
Terminali di : Transistor, diodi, circuiti integrati

C : collettore
B : base
E : emettitore

A : anodo
K : catodo



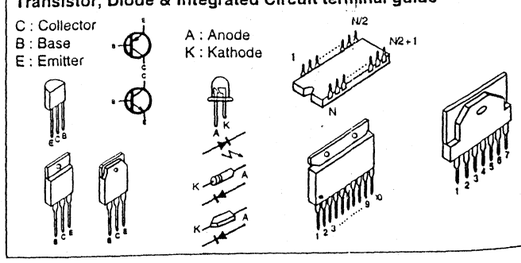
Simbali particolar



Transistor, Diode & Integrated Circuit terminal guide

C : Collector
B : Base
E : Emitter

A : Anode
K : Kathode



Particular parts symbol